View metadata, citation and similar papers at core.ac.uk
brought to you by CORE
provided by BSU Digital Library

БЕЛОРУССКИЙ ГОСУДАРСТВЕННЫЙ УНИВЕРСИТЕТ

LEARN ENGLISH by CORRESPONDENCE

ИЗУЧАЕМ АНГЛИЙСКИЙ ЯЗЫК НА ЗАОЧНОМ ОТДЕЛЕНИИ

Рекомендовано
Учебно-методическим объединением
по гуманитарному образованию в качестве
учебно-методического пособия
для студентов заочной формы обучения,
обучающихся по специальностям
1-31 03 01 «Математика (по направлениям)»,
1-31 03 08 «Математика и информационные технологии»

МИНСК
БГУ
2015

УДК 811.111’36(075.8)
ББК 81.2Англ-2-923
И40

Составители:
Л. К. Бизюк, Е. Ю. Столярова

Рецензенты:
кандидат филологических наук, доцент *С. А. Хоменко*;
кандидат филологических наук, доцент *Е. В. Коршук*

ISBN 978-985-566-144-4

© БГУ, 2015

ПРЕДИСЛОВИЕ

Данное учебно-методическое пособие предназначено для студентов-математиков заочного отделения. Основная цель пособия – выработка навыков перевода научно-технической литературы по специальности.

Учебный материал в пособии представлен четырьмя контрольными работами (согласно учебной программе), каждая из которых предваряется методическими указаниями по грамматике, затем следуют три варианта контрольных заданий. Каждое контрольное задание включает аутентичные тексты по специальности и грамматические упражнения для выполнения в межсессионный период.

Задача контрольных заданий – усвоение и закрепление необходимого лексического и грамматического материала.

Книга завершается разделом «Supplementary Reading», состоящим из текстов по высшей математике и информационным технологиям. Цель этого раздела – дальнейшее совершенствование навыков перевода научно-технической литературы и умений, которые необходимы для практического использования английского языка в профессиональной деятельности.

КОНТРОЛЬНАЯ РАБОТА 1

Для того чтобы правильно выполнить контрольные задания № 1, 2, 3, необходимо усвоить следующие разделы грамматики:

1. Местоимения *личные, притяжательные, указательные.*
2. Функции местоимения *it* в предложении.
3. Спряжение глагола *to be*.
4. Оборот *there is*/*there are*.
5. Спряжение глагола *to have*/*have got*.
6. Времена группы *Simple*.
7. Повелительное наклонение.
8. Времена группы *Continuous*.
9. Степени сравнения.
10. Образование множественного числа от слов латинского и греческого происхождения.

PRONOUNS
(Местоимения)

Personal (*личные*)		**Possessive** (*притяжательные*)	
Nominative	Objective	Dependent	Independent
I *я*	me *меня*, *мне*	my *мой*	mine *мой*
you *ты*	you *тебя, тебе*	your *твой*	yours *твой*
he *он*	him *его*, *ему*	his *его*	his *его*
she *она*	her *ее, ей*	her *ее*	hers *ее*
it *он*, *она*, *оно*	it *его*, *ему*, *ее*, *ей*	its *его*, *ее* } noun	its *его*, *ее*
we *мы*	us *нас*, *нам*	our *наш*	ours *наш*
you *вы*	you *вас*, *вам*	your *ваш*	yours *ваш*
they *они*	them *их*, *им*	their *их*	theirs *их*

Analyze the following sentences and translate them into Russian.

a) 1. **I** don't want this book. **You** can have **it**. 2. This letter isn't for **me**. It's for **you**. 3. **We** are going to the cinema. Do **you** want to come with **us**? 4. Robert wants these books. Can **you** give **them** to **him**, please?

b) 1. Most children live with **their** parents. 2. Do you like **your** job? 3. Oxford is famous for **its** university. 4. Tom was at the party with a friend of **his**. 5. We went on an excursion in **our** car and they went in **theirs**. 6. It is **their** problem, not **ours**.

PRONOUN *"it"*

a) We use a personal pronoun ***"it"*** as a **subject** (*подлежащее*) or an **object** *(дополнение)*.

1. I don't want **this book**. You can have **it**. 2. Where is **the newspaper**? – **It** is on your desk. 3. This jacket is very nice. Is **it** expensive? 4. I want **that photograph**. Please give **it** to me. 5. My brother has **a new job**. He doesn't like **it** very much.

b) We use ***"it"*** as a **subject** *(подлежащее)* with expressions that refer to *time, weather, day, temperature or distance.*

1. What time is **it**? – **It** is half past seven. 2. Does **it** snow very often here? 3. **It** is Thursday again. 4. **It** is cold today. **It** is minus 18 degrees. 5. **It** is a long way from here to the station. 6. **It** was cloudy yesterday.

c) **Preparatory** (*вводное*) ***"it".***

It	is was will be	easy/difficult/impossible/dangerous/safe/ expensive/interesting/nice/wonderful/ terrible/a pleasure	to do smth

1. **It** is difficult to wake up early in the morning. 2. **It** is not safe to go out alone at night. 3. Is **it** possible to phone you at your office? 4. **It** was a pleasure to talk to her. 5. **It** wasn't so easy to catch a taxi. 6. **It** will be wonderful to visit that city again.

Demonstratives (*указательные*)	
Singular (*единственное*)	**Plural** (*множественное*)
this *этот, эта, это* **that** *тот, та, то* } with a noun	**these** *эти* **those** *те* } with a noun
1. **This** hotel is expensive but it's very nice. *Эта гостиница дорогая, но очень хорошая.* 2. Who is **that** girl? *Кто эта девушка?*	1. **These** flowers are for you. *Эти цветы для тебя.* 2. **Those** apples look nice. Can I have one? *Те яблоки выглядят аппетитно.* *Можно мне* (*взять*) *одно яблочко?*

this *этот, эта, это* **that** *тот, та, то* } without a noun	**these** *эти* **those** *те* } without a noun
1. **This** is a nice hotel but it's very expensive. *Это хорошая гостиница, но очень дорогая.* 2. **That** was a really delicious meal. *Это было действительно вкусное угощение.*	1. **These** are my friends Bob and Ted. *Это мои друзья Боб и Тед.* 2. Are **those** your gloves? *Там (лежат) твои перчатки?*

The verb *"to be"*

(*быть, находиться, являться*)

Present	
I	**am**
he she it	**is**
we you they	**are**

Past	
I he she it	**was**
we you they	**were**

Future	
I we	**shall be** **will be**
he she it you they	**will be**

Analyze the interrogative and negative forms.

1. Jane **isn't** at home at the moment. She **is** at work. **Are** you parents at home? Why **are** you angry?
2. We **were** hungry after the journey but we **weren't** tired. **Was** the weather good when you were on holiday? Why **were** you late this morning?
3. **Will** you **be** at home this evening? I think Diana **won't be** here tomorrow. Where **will** your parents **be** tomorrow evening?

The Construction *there is/there are*

(*имеется, имеются, есть*)

Compare the following sentences.

1. **There is** a book on the piano. *На пианино лежит книга.*	1. The book **is** on the piano. *Книга лежит на пианино.*
2. **There was** a clock on the wall near the window. *На стене около окна висели часы.*	2. The clock on the wall near the window **was** late. *Часы на стене около окна опаздывали.*
3. The manager of the company is leaving, so **there will be** a new manager soon. *Управляющий компании увольняется, так что скоро появится новый управляющий.*	3. Our new manager of the company **will be** here soon. *Наш новый управляющий компании скоро будет здесь.*

Compare ***it*** *and* ***there.***

It rains a lot in winter. *Зимой часто идет дождь.* **It** was very **windy**. *Было ветрено.*	**There** is **a lot of rain** in winter. *Зимой часто идет дождь.* **There** was a **strong wind** yesterday *Вчера был (дул) сильный ветер.*

The verb *"to have"*
(*иметь*)

Present		
I we you they	***have***	***have got***
he she it	***has***	***has got***

Past	
I you he she it we they	***had***

Future	
I we	***shall have*** ***will have***
you he she it they	***will have***

In **questions** and **negative sentences** the following forms are used.

Present	***Have*** you ***got*** any money? ***Do*** you ***have*** any money? ***Have*** you any money? (*less usual*)	I ***haven't got*** any money. I ***don't have*** any money. I ***haven't*** any money. (*less usual*)
	Has she ***got*** a car? ***Does*** she ***have*** a car? ***Has*** she a car? (*less usual*)	She ***hasn't got*** a car. She ***doesn't have*** a car. She ***hasn't*** a car. (*less usual*)
Past	***Did*** they ***have*** a car last year?	They ***didn't have*** a car last year.
Future	***Will*** the students ***have*** a seminar tomorrow?	The students ***won't have*** a seminar tomorrow.

The verb **to have** is also used for many ***actions*** and ***experiences***.

to have	breakfast / dinner / a cup of coffee / a cigarette / a drink / a meal a bath / a shower / a swim / a rest / a party / a holiday / a nice time / a good journey / a good flight / a good trip an accident / an experience / a dream / a sleep / a lie-down / a talk / a fight/ a look (at something) / a chat (with somebody) a baby (= give birth to a baby) difficulty / trouble / fun
I ***don't*** usually ***have*** a big breakfast. What time ***does*** Ann ***have*** lunch? ***Did*** you ***have*** any difficulty at the exam yesterday?	

PRESENT, PAST, FUTURE SIMPLE

Present Simple

Positive	
I we you they	work like do
he she it	works likes does

Negative		
I we you they	**do not (don't)**	work like do
he she it	**does not (doesn't)**	

Interrogative		
Do	I we you they	work? like? do?
Does	he she it	

The Present Simple tense denotes

1. Repeated actions indicated by adverbials of frequency such as *often, always, usually, seldom, rarely, sometimes, never, generally, as a rule, every day (month), every other day (week, month,* etc.), *once a week.*	He ***often*** **works** till midnight. My brother **plays** tennis ***every other day*****.** She **is *never* late** for classes. **Do** you ***generally*** **speak** English in class? I ***sometimes*** **meet** your father at the station.
2. Universal truths (laws of nature) and permanent characteristics, situations or states.	The sun **sets** in the west. She **teaches** English at school. **Do** you **like** rainy weather? His parents **live** in London.
3. Present actions and states, going on at the moment of speech with the so-called **stative verbs** which include: a) **verbs of sense perception**: *see, hear, notice, taste, smell, etc.* b) **verbs of mental activity**: *understand, think, believe, remember, know, forget, mean, suppose, recognize,* etc. c) **verbs of feelings and emotions**: *like, dislike, hate, love, wish, want, care, prefer,* etc. d) **verbs of possession**: *have, belong, own, possess,* etc.	It **smells** like a hospital in here. The meat **tastes** spicy. I **don't see** anyone in the room. **Do** you **recognize** me? What **does** he **mean?** Who **do** you **think** will win the game? **Do** you **know** what he is speaking about? I **prefer** dogs to cats. Which of these dresses **do** you **like** best? **Do** you **want** anything to drink? – I **want** a glass of juice, please. Jill really **hates** house work. Who **does** this car **belong to?** They **have** a big new house.
4. Scheduled facts and events such as *flights, train arrivals, departures, itineraries*.	The flight **leaves** at ***2 p.m.*** (according to the timetable) You **arrive** in Basel at ***6.30 a.m***. local time. (according to the itinerary)

Past Simple

Positive	
I	play**ed**
we	start**ed**
you	watch**ed**
they	**had**
he	**saw**
she	**did**
it	**went**

Negative		
I		play
we		start
you	**did not (didn't)**	watch
they		have
he		see
she		do
it		go

Interrogative		
	I	play?
	we	start?
	you	watch?
Did	they	have?
	he	see?
	she	do?
	it	go?

The Past Simple tense describes

1. A single action or a state, or a succession of single past actions with time adverbials such as *ago, last year (week, month), yesterday, the other day, in 1997, last* (t*ime*), *for five years, for a week,* etc.	Ann **spent** a lot of money on books ***yesterday.*** It **didn't rain** ***last night.*** When **did** you **go** to the cinema ***last?*** She **started** playing the piano ***at the age of five.*** They **lived** in Brest ***for five years*** before the war**.** I **entered** the office, **looked** around and **came** up to the secretary.
2. A contrast between the past and the present, or something that was true but is not true any more **used to + Infinitive** *бывало, раньше*	He **used to smoke** forty cigarettes a day and then he finally gave up smoking. Do you play golf? – No, but I **used to** when I lived in the country. She **used to be** such a happy lively girl (but no longer now). The shops **didn't use to open** on Sundays in those days.

Future Simple

Positive / Negative		
I/we	**shall('ll)/shall not/shan't will('ll)/will not/won't**	**be win eat come**
you/they/ he/she/it	**will('ll)/will not/won't**	

Interrogative		
Shall Will	I/we	**be? win? eat? come?**
Will	you/they/ he/she/it	

The Future Simple tense denotes

1. A predicted future action, a happening which is inevitable and out of anybody's control with the adverbials of time such as *tomorrow, the day after tomorrow, next year, in a week (month, year), in 2008, etc.*	***Next year*** I'**ll be** 18. Spring **will come** ***soon***. ***In 100 years' time*** there **will be** a lot more people than there are now. Spring has come, so the snow **will start** melting, the birds **will come** back home.

2. An action which the speaker regards as possible, probable or likely to happen in future.	***I'm sure*** he'**ll get** better. ***I don't think*** I'**ll go** out tonight, I'm too tired. ***No doubt*** you**'ll enjoy** the performance. ***Do you think*** they**'ll win** the match? I'**ll** ***probably*** **be** a bit late this evening. I haven't seen Carol today. ***I expect*** she **will phone** this evening.
3. An action which is spontaneous, not part of a plan.	Don't lift the suitcase. **I'll help** you. It looks like rain. **I'll take** my umbrella then. What would you like to drink? – **I'll have** a coke, please.
4. A future action in complex sentences in the main part. But after *if, when, while, after, before, as soon as, until/till* we use **Present Simple, Present Perfect.**	**I'll phone** you ***as soon as*** I **arrive.** ***When*** you **return** home you**'ll notice** a lot of changes. It's pouring down. We**'ll get** wet through ***if*** we **go out.** ***When*** you **see** Jane again, you **won't recognize** her. Come on! Mum **will be worried** ***if*** we **are late** again. I **won't send** the parcel ***until*** I **hear** from you. ***As soon as*** Bob and Ashton **have got married,** they**'ll move** to California. I **shan't phone** you ***until*** I **have done** my homework.

Facts to be remembered

1. We use ***shall I*** … ? / ***shall we*** …? to ask somebody's opinion (especially in **offers** or **suggestions**).	***Shall I*** open the window? *Открыть окно*? I've got no money. What ***shall I*** do? *У меня нет денег. Что делать*? Where ***shall we*** go this evening? *Куда мы пойдем сегодня вечером*?
2. You can use ***won't*** to say that somebody / something refuses to do something.	The car ***won't*** start. I wonder what's wrong with it. *Автомобиль никак не заводится. Интересно, в чем дело.*

THE IMPERATIVE MOOD
(*Повелительное наклонение*)

Глагол в повелительном наклонении выражает **побуждение к действию**, т. е. *приказание, просьбу, совет* и т. п.

Утвердительная форма повелительного наклонения совпадает с формой **инфинитива** (*без частицы* ***to***):

to read	читать	Read the text! *Читайте текст*!
to listen	слушать	Listen to the teacher! *Слушайте учителя*!

Отрицательная форма образуется при помощи вспомогательного глагола **do** и отрицательной частицы **not**:

Don't (do not) wait.	*Не ждите.*
Don't (do not) open the windows.	*Не открывайте окна.*

Для выражения побуждения к действию, обращенному к **первому** и **третьему** лицу, употребляется следующая комбинация:

let + личное местоимение в объектном падеже
(или существительное в общем падеже) + **инфинитив** без **to**

Let me take your pen.	***Позвольте мне** взять вашу ручку.*
Let him (your friend) go there.	***Пусть он** (твой друг) пойдет туда.*
Let us (let's) sing a song.	***Давайте** споем песню.*
Let them (your children) go out.	***Пусть они** (твои дети) пойдут на прогулку.*

CONTINUOUS TENSES

Be + Participle I

Present Continuous		Past Continuous		Future Continuous	
I	**am reading**	I	**was reading**	I/We	**shall be reading** **will be reading**
He/She/It	**is reading**	He/She/It		He/She/It/ You/They	**will be reading**
We/You/They	**are reading**	We/You/They	**were reading**		

Present Continuous Tense

The Present Continuous Tense употребляется для:	Примеры
1. Обозначения действия, происходящего в момент речи со следующими словами: *at this moment, at the time, now, at present, just now, still* или время действия задается контекстуально.	We **are** all **waiting** for you outside. *Мы все ждем тебя на улице.* What **are** the children **doing *now***? – They **are playing** in the park. *Чем сейчас занимаются дети? – Они играют в парке.* Listen attentively! The teacher **is explaining** a new grammar rule. *Слушайте внимательно! Учитель объясняет новое грамматическое правило.*
2. Выражения действия, совершающегося в более широкий период времени или изменяющейся ситуации (с глаголами *get, develop, increase, change, improve*), etc.	I **am travelling** a lot these days. *В настоящее время я много путешествую.* My brother **is studying** physics in Cambridge. *Мой брат изучает физику в Кембридже.* Our life **is changing** from year to year. *Из года в год наша жизнь меняется.*

3. Передачи запланированных событий (особенно социальных или связанных с поездками).	What are you doing tonight? – We **are having** a party. *Что ты делаешь сегодня вечером? – У нас будет вечеринка.* I'**m going** to the dentist on Monday. *В понедельник я иду к зубному врачу.*

Past Continuous Tense

The Past Continuous Tense употребляется для:	Примеры
1. Выражения незаконченного временного действия, протекавшего в определенный момент в прошлом с индикаторами времени: *at 5 o'clock yesterday, from…till, all day yesterday, the whole evening, when he came, while, all day long, at noon.*	What **were** you **doing *at 2 o'clock yesterday***? – I **was having** a shower ***when the phone rang***. *Чем ты занимался вчера в 2 часа? – Я как раз принимал душ, когда зазвонил телефон.* I don't know what he said. I **wasn't listening** to him. *Я не знаю, что он сказал. Я не слушал его.* ***When I got home***, water **was running** down the kitchen walls. *Когда я пришел домой, на кухне по стенам струилась вода.*
2. Выражения длительного действия, протекавшего в более широком отрезке времени, но которое не является непрерывным в течение всего отрезка.	We **were bathing** in the sea during the summer. *Летом мы купались в море.* Before I came here, I **was taking** a post-graduate course at Berlin university. *До моего приезда сюда, я учился в аспирантуре Берлинского университета.*
3. Описания двух или более одновременно протекавших действий в прошлом (со словом *while*).	I **was doing** my homework while Mom **was** cooking lunch. *Я делал домашнее задание, в то время как мама готовила обед.*

Future Continuous Tense

The Future Continuous Tense употребляется для:	Примеры
1. Выражения незаконченного длительного действия, которое будет протекать в определенный момент или более широкий период времени в будущем с индикаторами времени: *at 5 o'clock tomorrow, this time next week, soon, tonight, all day long.*	***On Friday night*** we **will be celebrating** my brother's birthday. *В пятницу вечером мы будем праздновать день рождения моего брата.* ***This time next week*** I'**ll be lying** on the beach in Philadelphia. *В это же время на следующей неделе я буду загорать на пляже в Филадельфии.*
2. Выражения запланированного действия, которое неизбежно или с большей степенью вероятности состоится в ближайшем будущем.	I'**ll be meeting** him at the office ***tomorrow***. *Я встречусь с ним в офисе завтра.* **Will** you **be going** into town ***today***? *Ты сегодня поедешь в город*?

INTERROGATIVE PRONOUNS
(Вопросительные местоимения)

Who – *кто*
Whom – *кого*
Whose – *чей*
Where – *где*
When – *когда*
Why – *зачем*
What – *какой, что*
How – *как*
Which – *который, какой*

TYPES OF QUESTIONS
(Типы вопросов)

General

Вспомогательный глагол	Подлежащее	Сказуемое или часть его	Дополнение	Обстоятельство
Do	you	watch	TV	in the evening?
Have	they	got	free time	in summer?
Does	she	wash	her hair	in the morning?
Is	she	wearing	a coat	now?
Will	you	be using	your bike	this Friday?

Special
(except the subject)

Вопросительное местоимение	Вспомогательный глагол	Подлежащее	Сказуемое или часть его	Дополнение	Обстоятельство
Why	does	she	come	to school	so early?
Who	did	you	borrow	the money from?	
Where	shall	we	go		now?
How long	were	they	making	supper	yesterday?
When	will	you	be lying		on the beach?

Special
(to the subject)

Вопросительное местоимение	Сказуемое	Дополнение	Обстоятельство
Who	gave	you	the information?
Which bus	goes		to the city centre?
Whose friends	will visit	him	in hospital?
Whose son	was singing	songs	all day?
Who	will be buying	presents	this time next week?

DEGREES OF COMPARISON
(Степени сравнения)

В английском языке имена прилагательные имеют три степени сравнения: **положительная** (*positive*, соответствует словарной форме), **сравнительная** *(comparative)* и **превосходная** *(superlative)*.

Существуют два способа образования степеней сравнения:

1) **простые формы** образуются при помощи суффиксов:

-er (*comparative*); **-est** (*superlative*);

2) **сложные формы** образуются при помощи следующих слов:

more + прилагательное (*comparative*);
the most + прилагательное (*superlative*).

Короткие слова: **-er**, **-est**	hot – hott**er** – the hott**est** cold – cold**er** – the cold**est** large – larg**er** – the larg**est**
Слова, оканчивающиеся на **-y**: **-ier, -iest** **Но:**	dir**ty** – dirt**ier** – the dirt**iest** happ**y** – happ**ier** – the happ**iest** ga**y** – gay**er** – the gay**est**
Длинные слова: **more, the most**	famous – more famous – the most famous general – more general – the most general
Некоторые прилагательные имеют два способа образования степеней сравнения: *clever, stupid, gentle, friendly, cruel, common, pleasant, quiet, narrow, shallow*	quiet – quieter – the quietest quiet – more quiet –the most quiet shallow – shallower – the shallowest shallow – more shallow – the most shallow
real right wrong	real – more real – the most real right – more right – the most right wrong – more wrong – the most wrong
Усиление значения **a bit/a little** + comparative (*немного*)	**a bit** longer – ***немного*** *длиннее* **a little** cheaper – ***немного*** *дешевле*
Усиление значения **much/far/ a lot** + comparative (*намного, гораздо*)	Your car is **much older** than mine. *Твой автомобиль* ***значительно старее*** *моего.* This way is **far longer** than that one. *Этот путь* ***гораздо длиннее****, чем тот.*

Irregular Comparatives and Superlatives

good/well – *хороший/хорошо*	**better**– *лучший/лучше*	**best** – *самый лучший*
bad/badly – *плохой/плохо*	**worse** – *худший/хуже*	**worst** – *самый худший*
much/**many** – *много*	**more –** *больше/более*	**most** – *наибольшее количество*
little – *мало*	**less** – *меньше/менее*	**least** – *наименьшее количество*
far – *далекий/далеко*	**farther** – *дальше* **further** – *дальше, дополнительный, добавочный*	**farthest** – *самый дальний* **furthest** – *самый дальний, дальше всего*
late – *поздний/поздно*	**later** – *более поздний/ позже* **latter** – *последний* (*из упомянутых*)	**the latest** (there may be more to come) – *самый поздний, но не последний* **the last** (final, before this) – *последний, окончательный*
old – *старый*	**older** – *старше* **elder** – *старше в семье*	**the oldest** – *самый старший* (*о возрасте*) **the eldest** – *старший в семье*
near – *близкий/близко*	**nearer** – *ближе*	**the nearest** (*о расстоянии*) **the next** (*порядок*)

Comparative Structures

Comparative + **than** (*чем*)	New York is **larger than** Washington. *Нью-Йорк больше Вашингтона.* My friend is three years **older than** me/than I am. *Мой друг на три года старше меня.*
As ... (positive) ... **as** (*такой же ... как*)	He is **as** handsome **as** his brother. *Он такой же красивый, как и его брат.* Their car is **as** expensive **as** ours. *Их автомобиль такой же дорогой, как и наш.*
Not so/as ... (positive) ... **as** (*не такой ... как*)	She is **not as** slim **as** her sister. *Она не такая стройная, как ее сестра.* Mrs. Green is **not so** friendly **as** she looks. *Миссис Грин не такая дружелюбная, как выглядит.*

Twice/three times/half as … (positive) ... **as** (*в два, три раза, наполовину ... чем*)	She has **four times as** much money **as** me. *У нее в четыре раза больше денег, чем у меня.* If he was **half as** lucky **as** you, he would win. *Если бы он был хотя бы наполовину удачливее тебя, он бы победил.*
The same ... (существительное) ... **as** (*такой же ... как*)	He has **the same** habits **as** his father. *У него такие же привычки, как у отца.*
The + comparative ... , **the** + comparative (*чем ... тем*)	**The easier** the exam, **the higher** your mark will be. *Чем легче экзамен, тем выше будет ваша оценка.*

Plural of nouns of Latin and Greek origin

a) **-on , -um → -a**

criterion	criteria	continuum	continua
phenomenon	phenomena	minimum	minima
medium	media	symposium	symposia
maximum	maxima	datum	data

b) **-is → -es , -ix, -ex → -ices**

analysis	analyses	axis	axes
hypothesis	hypotheses	matrix	matrices
parenthesis	parentheses	index	indices
crisis	crises	directrix	directrices
basis	bases	vertex	vertices

c) **-us → -i**

calculus	calculi	genius	genii
modulus	moduli	radius	radii
nucleus	nuclei	locus	loci
rhombus	rhombi	focus	foci

d) **-a → -ae**

abscissa	abscissae	corona	coronae
hyperbola	hyperbolae	lacuna	lacunae
formula	formulae		

Modern forms

abscissas	radiuses	criterions	spectrums
formulas	mediums	hyperbolas	maximums
geniuses	indexes	rhombuses	lacunas

Контрольное задание 1

I. Прочитайте текст, переведите его и письменно ответьте на вопросы, следующие за текстом.

The Natural Numbers

1. So far we have encountered several different systems that are capable of representing the natural numbers. One system consists of the common Arabic numerals, with their addition and multiplication tables. A second one consists of the Roman numerals, with their tables. The third system consists of points on a line and the appropriate constructions for adding or multiplying them. This variety of representations raises the question "What is the natural number system?"

2. We may try to answer this question by listing some characteristics that all these number systems have in common. All three, for example, obey the five laws. But this is not an adequate answer, because all number systems as we have defined the term, will obey these five laws. And we intend to produce some number systems that are not interchangeable with the natural number system at all. To define the natural number system, we must list not merely characteristics that all of its representations have in common. We must note particularly its distinguishing characteristics. This is done by choosing the defining characteristics in such a way that all systems that have these characteristics must be isomorphic to each other. Such a section of characteristics that effectively defines one and only one structure is called a system of axioms for the structure. Here is a system of axioms for the natural number system (not including 0), first formulated by the Italian mathematician G. Peano.

3. A set of elements is called a natural number system if it has the following characteristics:

(1) It contains an element called **1**.

(2) For every member in the system, there is another member (and only one) called its successor.

(3) Two distinct members do not have the same successor.

(4) There is no member of the system that has **1** as its successor.

(5) If a set of elements belonging to the system contains **1**, and, for each member that it contains, also contains its successor, than this set contains the whole system.

4. Notice that addition and multiplication are not mentioned in these axioms at all. G. Peano defined these operations in terms of his axioms as follows: For any natural numbers ***x*** and ***y***,
let $x + 1$ = the successor of ***x***;
let ***x*** + (the successor of ***y***)= the successor of $(x + y)$;
let $x \times 1 = x$;
let ***x*** (the successor of ***y***) = $x \times y + x$.
With these definitions it is possible to prove that the natural number system obeys the five laws.

5. What G. Peano did for the natural number system is typical of the way in which mathematical structures are studied today. In modern mathematics, a mathematical structure is often defined as a set of objects that satisfies a specified set of axioms.

Questions:

1. What does the first system consist of? 2. How many laws do all three systems obey? 3. What must we do to define the natural number system? 4. What are the characteristics of a natural number system? 5. How did G. Peano define addition and multiplication? 6. How is a mathematical structure defined in modern mathematics?

II. Письменно переведите 2-й и 5-й абзацы текста.

III. Поставьте ***специальные вопросы*** *к следующим предложениям.*

1. Ordinary people communicate by means of the formalized language of maths (How…?). 2. The students of our group have got two exams today (Who …?). 3. Algebraists learnt to think in terms of equations (In what way …?). 4. There are seven faculties for sciences at our university (How many …?). 5. We will be considering complex numbers next term (When …?). 6. We are substituting unknowns for irrationals to get a right result (Why …?).

IV. Раскройте скобки, поставив глаголы в ***нужном*** *по смыслу* ***времени****. Переведите письменно предложения на русский язык.*

1. The teacher (to explain) how to mark off the line with numbers right now.
2. The graph (to approach) the axis of x, but never (to reach) it. 3. They (to start) a new series of experiments next week. 4. We (to go) down in the lift when it suddenly stopped. 5. Marie and Pierre Curie (to discover) radium and in 1903 (to win) the Nobel Prize. 6. When he (to have) a problem to solve, he will work at it until he (to find) an answer.

V. Раскройте скобки, употребив нужную ***степень сравнения прилагательного****. Переведите письменно предложения на русский язык.*

1. This problem is (difficult) than the first problem. 2. The (long) he refuses to recognize the impossibility of the solution, the (bad) for him. 3. The contribution of the ancient Greeks to geometry is much (great) than the formulas of the Egyptians. 4. This year's exam was (difficult) than last year's. 5. If you need any (far) information, call the office. 6. Their house is (old) in the village.

VI. Раскройте скобки, выбрав правильный вариант. Переведите письменно предложения на русский язык, обращая внимание на разницу в переводе предложений, содержащих ***it*** *или* ***there****.*

1. Do you know how far (there is/it is/it was) from here to the university? 2. (There will be/It will be/There is) a supermarket opposite the park in two years. 3. Why not take a taxi? (There is/It is/Is it) a long way from your house to the airport. 4. Last Monday (it was/it wasn't/there was) a party next door. (There was/It wasn't/It is) easy for me to get to sleep. 5. (There wasn't/It wasn't/There weren't) anything interesting in yesterday's news programmes. 6. (It is/There is/There was) ten miles to the nearest petrol station.

VII. Переведите письменно на русский язык следующие предложения, обращая внимание на побудительную форму повелительного наклонения с глаголом ***let****.*

1. Let us consider this sequence. 2. Let the radius of the circle be R. 3. Let C denote a subfield of the set F of complex numbers. 4. Let me see what you are doing. 5. Let the above condition hold in this case. 6. Let there be no doubt in your minds about our intentions.

VIII. Раскройте скобки, выбрав подходящее ***местоимение****. Переведите письменно предложения на русский язык.*

1. Her new car is really nice, but I don't like (her/it's/its) colour. 2. Do you think that most people are happy in (they/their/theirs) jobs? 3. Where did you spend (your/yours/his) holiday? 4. Last night I went out for a meal with a friend of (mine/me/my). 5. This is their computer, that computer is (them/their/theirs) too. 6. We are going to the cinema. Why don't you come with (our/us/we)?

IX. Раскройте скобки, выбрав правильный вариант. Вспомните правила образования ***множественного числа*** *существительных* ***латинского и греческого происхождения****. Переведите письменно предложения на русский язык.*

1. If a curve is symmetric with respect to both (axis/axes/axeses), is it symmetric with respect to the origin? 2. All these facts may serve as reference

(datum/data/datas). 3. Analytic methods give us a means of finding the equations of (locus/locuses/loci). 4. There (was/were/will be) three symposia held on the problems of pollution last year. 5. If you go to bed late, (there is/it is/there will be) difficult to get up early in the morning. 6. The economic crisis of the 1990s (were/are/was) the heaviest one for our country.

Контрольное задание 2

I. Прочитайте текст, переведите его и письменно ответьте на вопросы, следующие за текстом.

Numbers systems of Mathematics

1. Mathematicians study numbers and develop new number systems in a specific field of maths – *number theory* – which is the oldest and purest branch of maths. The generators of *classical number theory* – the ancient Greek mathematicians – studied numbers with no immediate applications in mind. The main value of numbers for them was that "numbers are amusing and challenging to the human imagination" and they assigned all kinds of mysterious meanings and interpretations to numbers: the number *2* for them stood for *female, 3* stood for *male, 4* – for *justice, 5* – for *marriage* because it is the union of the first *odd* and the first *even* number, etc.

2. Although applications were not the main objective (aim) of the classical number theory, Greek investigators discovered many curious and fascinating number properties and gave birth to theoretical *pure maths.* They were the first to formulate the abstract notion of "number" that constituted a grand advance of the human intellect. The positive integers or natural numbers were the foundation of all classical maths and the major ancient Greeks' *thesis* was that "number is the essence of reality, that scientists should study nature quantitatively and express the results in terms of math laws (rules) and theories".

3. In maths there exist various ways to study numbers – one way of further *extension, generalization* and *synthesis* when mathematicians build up number concepts of great complexity and generality. Another method is *analysis* when mathematicians arrive at the essence of numbers; when they break down the complexities and study the original primitive positive integers and their properties. Both ways are of great importance.

4. Nowadays mathematicians separate the number systems of maths into *five* principal stages. Each stage has got a long history of its development and recognition. They are: 1. The system of *natural numbers* or positive integers only; 2. The next stage comprises *positive* as well as *negative integers* and

zero; 3. The *rational numbers* which combine integers and fractions; 4. The *real numbers* that include irrational numbers such as $\boldsymbol{\pi}$. 5. *The complex numbers* that contain the so-called "imaginary" number $\sqrt{-1}$. In modern maths there are several new number systems. Of these modern systems three occupy an exceptionally significant place within maths, viz. (namely), *quaternions* (triplets), *matrices* and *transfinite numbers.*

5. Some comments are necessary, indeed. The word *"rational"* does not mean "reasonable" – it comes from the word *ratio* or *quotient* of two integers. Don't think that the word *"imaginary"* means that these numbers are mystical or unreal in the everyday sense of the word, or that *"complex"* means "complicated'. *Imaginary numbers* and *complex numbers* have had very "real" applications in many branches of maths and science. It is interesting to mention that the number **0** (zero) originally had signified an empty place only. Modern mathematicians recognize zero as any other number and not just a symbol for an empty space. Zero is a meaningful math object with the properties defined by a set of rules. Zero is neither "more real" or "less real" than any other number.

Questions:

1. What field of maths deals with the number theory? 2. Who first formulated the abstract notion of "number"? 3. What methods of studying numbers do there exist? 4. How many principal stages do mathematicians separate the number system into? Enumerate them. 5. What new number systems do you know? 6. Can we say that the number 0 (zero) signifies an empty place only? Why?

II. Письменно переведите 2-й и 5-й абзацы текста.

III. Поставьте ***специальные вопросы*** *к следующим предложениям.*

1. Other writers define a point as a pure position (Who ...?). 2. Euclid constructed a whole system of geometry from these few evident axioms (What ...?). 3. There were three important statements in the last article (How many ...?). 4. Distance education has got a lot of implications (What ...?). 5. She will represent this mathematical relation by a formula (How ...?). 6. Now we are adding two numbers to check the result (Why ...?).

IV. Раскройте скобки, поставив глаголы в ***нужном*** *по смыслу* ***времени****. Переведите письменно предложения на русский язык.*

1. He (to make) a report on analytical methods next month. 2. She (to wear) a beautiful black and white silk blouse now. 3. It all happened while we (to live)

in Bristol. 4. I will join you as soon as I (to get) a note from you. 5. My friend (to move) to a new flat next week. 6. This time next month the students of our group (to take) an exam in geometry.

V. Раскройте скобки, употребив нужную ***степень сравнения прилагательного****. Переведите письменно предложения на русский язык.*

1. Air travel is (expensive) than any other form of modern transport. 2. The (soon) you take your medicine, the (good) you will feel. 3. This definition of an angle is (precise) than that one. 4. The weather in this part of the country is much (cold) than anywhere else. 5. What we need is a (good) job. 6. What is the (quick) way of getting from here to the station?

VI. Раскройте скобки, выбрав правильный вариант. Переведите письменно предложения на русский язык, обращая внимание на разницу в переводе предложений, содержащих ***it*** *или* ***there****.*

1. (There will be/There are/It is) about 80 different types of plastics in the world at present. 2. (It wasn't/There wasn't/There weren't) easy to find your house yesterday. 3. When you come tomorrow, (there is/there will be/it will be) your friend at the station meeting you. 4. (There are/There is/It is) too much sugar in the tea, I can't drink it. 5. Economic crises (is/are/were) the most characteristic features of modern civilization. 6. (It is/There is/It will be) a photograph of the village where my parents were born.

VII. Переведите письменно на русский язык следующие предложения, обращая внимание на побудительную форму повелительного наклонения с глаголом ***let****.*

1. Let us determine the algebraic properties of these numbers. 2. Let them consider three types of motion. 3. Let me help you with your bag. 4. Let this assumption be false. 5. Let the children go to bed early during the week. 6. Let the same results hold for negative numbers.

VIII. Раскройте скобки, выбрав подходящее ***местоимение****. Переведите письменно предложения на русский язык.*

1. The company has offices in many places but (it/its/her) head office is in Paris. 2. Thank you for (yours/your/you) letter, I was glad to hear from (him/hers/you). 3. Some people talk about (them/their/theirs) jobs all the time. 4. This watch is a gift from my uncle, he gave it to (my/mine/me) last year. 5. We were staying in a nice hotel, (its/our/his) room was very comfortable. 6. She told me of a friend of (she/her/hers) who was not reliable.

IX. Раскройте скобки, выбрав правильный вариант. Вспомните правила образования ***множественного числа*** *существительных* ***латинского и греческого происхождения****. Переведите письменно предложения на русский язык.*

1. There (is/are/was) two foci in a regular oval, called an ellipse. 2. The conic sections will be defined with reference to a (foci/focus/focuses) and a (directrix/directrices/derectrici). 3. The notion of a four dimensional geometry is a very helpful one in studying physical (phenomenon/phenomena/phenomenons). 4. The common point of two rays (are/is/were) a vertex of the angle. 5. The length of a diameter is equal to twice the length of (a radius/radii/radiis). 6. A cylinder is a circular prism, the bases of which (is/are/was) equal circles that are parallel to each other.

Контрольное задание 3

I. Прочитайте текст, переведите его и письменно ответьте на вопросы, следующие за текстом.

The Advantages and disadvantages of certain numeration systems

1. The concept of a number did not appear all of a sudden. Scientists do not have enough evidence to fix the period in history of the invention or discovery of cardinal numbers. The origin of number and counting is hidden behind countless prehistoric ages. The earliest documents available show that the number concept is equally present in many ancient civilizations. Counting represents a very important milestone in the progress of civilization. The first requirement in computation is a system of numerals, i. e., a way to write numbers.

2. Numeration first evolves through the use of spoken and later on written languages. Some ancient tribes used a base of 2 and 3 to count by (1–2, 2–1, 2–2) (1–2–3, 3–1, 3–3). Historical records give evidence of the astronomical and arithmetical achievements of the ancient Babylonians, Sumerians and Chinese. Sometime before 2000 B.C. *the Babylonians* developed a base-sixty or sexagesimal system of numeration with the positional principle which is still useful in astronomical calculations. The Babylonians of 2000 B.C. were well-trained and skillful calculators.

3. *The early Egyptian numeration system* used a base often with no more than three symbols to express any number less than 100 – one for units, one for tens, and one for hundreds. The zero symbol is unnecessary. *The ancient Greeks' nonpositional numeration* system employs twenty-four letters of their

alphabet to produce letter-numerals and special symbols (M = myriad) for large numbers. To tell a number from a word the ancient Greeks used an accent (stress) at the end of a number sign or a stroke over it. The traditional *Chinese-Japanese numeration system* is a base-ten system with nine numerals and symbols for the place value. Numbers go from the top downward or from left to right. *The Mayan numeration system* (400 A.D.) uses the base twenty with positional notation and a special symbol for zero.

4. The present-day number-symbols are Hindu characters, but the details of the exact formation of *the Hindu-Arabic symbolic system* are missing. Our number system uses only the symbols **0, 1, 2 ... 9**; it has base ten and positional notation. Thus any integer can be expressed with these symbols in various combinations and arrangements. It is not known when or by whom zero (nought) was invented. Historians think that zero was introduced by the Hindus or the Babylonians not later than in the ninth century A. D. and probably as early as the second century B. C. The invention of zero and our number system is one of the greatest achievements of the human race, without which the progress of science, industry, and commerce could be impossible. This new system was introduced in Europe by the Arabs, or Moslems, at about the beginning of the tenth century. These new numbers were used, and finally, after about five centuries, the decimal system won the battle.

5. *Binary system* is of recent origin and extremely important in cybernetics. It needs only a sequence of two digits, **0** and **1**, to represent numbers of any size.

Questions:

1. When did the cardinal numbers appear? 2. What is the first requirement in computation? 3. Was the Greeks' numeration system positional or nonpositional? 4. In what way did the ancient Greeks tell a number from a word? 5. How many digits does the binary system need to represent numbers of any size? 6. By whom was zero invented?

II. Письменно переведите 1-й и 4-й абзацы текста.

*III. Поставьте **специальные вопросы** к следующим предложениям.*

1. New geometries find invaluable application in the modern development of analysis (Where …?). 2. There are two meanings of this term (How many …?). 3. The math language has got some design and rules (What …?) 4. The algebraists learnt to think in terms of equations (How …?). 5. We were sitting in a café at 2 o'clock yesterday (When …?). 6. Scientists will know the results of the experiment in a meek (What …?).

IV. Раскройте скобки, поставив глаголы в ***нужном*** *по смыслу* ***времени****. Переведите письменно предложения на русский язык.*

1. The professor (to present) his viewpoint at the next conference. 2. We (to discuss) that important law while they were away. 3. I (to have) no time to help you yesterday. 4. I (to stay) with my parents at the moment, though I have my own flat. 5. If father (to have) some time in the evening, he will upgrade your computer. 6. This time next week I (to enjoy) the extraordinary underwater world on the Hawaii islands.

V. Раскройте скобки, употребив нужную ***степень сравнения прилагательного****. Переведите письменно предложения на русский язык.*

1. The (fundamental) are the laws, the (universal) is their use. 2. We choose the magnitude of an angle (large) we please. 3. Engineering develops so quickly that (late) model of a machine today becomes out-of-date in a few years. 4. Gauss was interested in (deep) ideas than the simple numerical computations. 5. The exam was quite easy – much (easy) than we expected. 6. Why does she come to see me at the (bad) possible moment?

VI. Раскройте скобки, выбрав правильный вариант. Переведите письменно предложения на русский язык, обращая внимание на разницу в переводе предложений, содержащих ***it*** *или* ***there****.*

1. How far (is it/is there/it is) from Minsk to Moscow? 2. I wanted to visit the museum but (it wasn't/it isn't/there wasn't) enough time. 3. (It is/It was/There was) an accident in King Street but (there wasn't/it wasn't/it was) very serious. 4. I don't think (there are/there will be/it will be) any problems with the exam in algebra. 5. (Will it be/there will be/will there be) many people at the party? 6. A lot of cities are not safe, (there is/it is/there will be) dangerous to go out alone.

VII. Переведите письменно на русский язык следующие предложения, обращая внимание на побудительную форму повелительного наклонения с глаголом ***let.***

1. Let point *P* be the point of intersection of two circles. 2. Let us leave the case at the station. 3. Let the authorities do something about the problem. 4. Let them not say anything about it till they hear all the arguments. 5. Let there be various ways of evaluating formulae. 6. Let the students keep in mind that algebraic fractions are essentially the same as arithmetic ones.

VIII. Раскройте скобки, выбрав подходящее ***местоимение****. Переведите письменно предложения на русский язык.*

1. That is a good idea, but (he/his/him) is better. 2. I am going to a wedding on Saturday. A friend of (me/mine/my) is getting married. 3. The room is large but (its/her/their) windows are not large. 4. Their university is in Regent Street, (our/ours/us) is in the centre of the city. 5. Did your sister pass (her/hers/its) exams? 6. Where are my keys? Where did I put (they/them/their)?

IX. Раскройте скобки, выбрав правильный вариант. Вспомните правила образования ***множественного числа*** *существительных* ***латинского и греческого происхождения****. Переведите письменно предложения на русский язык.*

1. The graph of an equation is the (loci/locuses/locus) of the points whose coordinates satisfy the equation. 2. To coordinate numbers to points in space we'll employ a coordinate system consisting of three mutually perpendicular (axes/axis/axises). 3. The area of an ellipse equals π times the product of the long and the short (radius/radii/radices). 4. Matrices of single row or single column type (is/are/was) of very common occurrence. 5. The hypothesis given (were/is/are) contrary to our statement. 6. There (are/is/was) crises in our life which lead to great instability in economic affairs.

КОНТРОЛЬНАЯ РАБОТА 2

Для того чтобы правильно выполнить контрольные задания № 1, 2, 3, необходимо усвоить следующие разделы грамматики:

1. Времена группы *Perfect*.
2. Времена группы *Perfect Continuous.*
3. Страдательный залог и особенности его перевода на русский язык.
4. Модальные глаголы и их эквиваленты.
5. Причастие I, II.
6. Неопределенные местоимения *some*, *any*, *no* и их производные.

PERFECT TENSES

Времена группы **Perfect** обозначают действие, завершенное до определенного момента в настоящем, прошедшем и будущем.

<table>
<tr><th colspan="3">Present</th><th colspan="2">Past</th><th colspan="3">Future</th></tr>
<tr><td>I
we
you
they</td><td>have</td><td rowspan="2">asked</td><td>I
we
you
they
he
she
it</td><td rowspan="2">had asked</td><td>I
we</td><td>shall
will</td><td rowspan="2">have
asked</td></tr>
<tr><td>he
she
it</td><td>has</td><td>you
they
he/she/it</td><td>will</td></tr>
<tr><td colspan="3">just, already, by now, yet (еще, уже), before, this morning/week/year, today, never, ever (когда-либо), recently (недавно), lately (недавно), since, for (в течение), how long</td><td colspan="2">by 5 o’clock yesterday, by that time, as soon as, by Monday, up to that year/week/day, after, before he came</td><td colspan="3">by 5 o’clock yesterday, by this time, by the end of the year, before he comes</td></tr>
</table>

- В *вопросительной* форме вспомогательный глагол ставится перед подлежащим: **Has** he **asked**? **Had** you **asked**? **Will** they **have worked**?

- В *отрицательной* форме частица ***not*** ставится после вспомогательного глагола: He **has *not* asked**. You **had *not* asked**. They **will *not* have asked**.
- В *вопросительно-отрицательной* форме частица ***not*** ставится после подлежащего: **Has** he ***not* asked**? **Had** you ***not* asked**? **Will** they ***not* have asked**?

The Present Perfect употребляется:

1. Для выражения однократного действия, завершившегося к данному моменту речи и связанного с настоящим временем через результат. Действие могло совершиться как непосредственно перед моментом речи, так и в более отдаленное время в прошлом.

I **haven't seen** him today.	*Я его сегодня (еще) не видел.*
It's the best book I **have** ever **read**.	*Это лучшая книга, которую я когда-либо читал.*
He **hasn't written** his thesis yet.	*Он еще не написал диссертацию.*
He **has** just **shown** me his course paper.	*Он только что показал мне свою курсовую работу.*
What kind of problem **has** he **solved**?	*Какую задачу он решил?*

2. Для выражения действия, которое началось до момента речи и все еще продолжается в момент речи (с глаголами, которые не употребляются во временах группы *Continuous*).

I'**ve been** in the laboratory since two o'clock.	*Я* (*нахожусь*) *в лаборатории с двух часов.*
We'**ve known** him for three years.	*Мы знаем его три года.*

3. Для выражения завершенного будущего действия в придаточных предложениях времени и условия после предлогов *when, after, as soon as, until, till, if*.

After I **have checked** the results, I will discuss them with my science adviser.	*После того, как я проверю результаты, я обсужу их с моим научным руководителем*.

The Past Perfect употребляется:

Для выражения действия, которое совершилось до какого-то другого действия или момента в прошлом.

We **had translated** the article by five o'clock.	*Мы* (*уже*) *перевели статью к пяти часам.*
He **had passed** his exam in physics when I met him.	*Он* (*уже*) *сдал экзамен по физике, когда я его встретил.*

The Future Perfect употребляется:

Для выражения действия, которое завершится к определенному моменту в будущем. Это редко употребляемая форма.

He **will have informed** them about the changes in the program before they start the experiment.	*Он уведомит их об изменениях в программе до того, как они начнут эксперимент.*
They **will have finished** their research by the end of the next year.	*Они закончат свое исследование к концу следующего года.*

PERFECT CONTINUOUS TENSES

Present			Past		Future		
I we you they	**have**	**been asking**	I we you they he she it	**had been asking**	I we	**shall** **will**	**have been asking**
he she it	**has**				you they he/she/it	**will**	
for 6 years, all day/week, since 5 o'clock, etc.			for 3 hours when you came, since 5 o'clock when you came, etc.		for 2 hours when you come, for 5years by September, etc.		

- В *вопросительной* форме первый вспомогательный глагол ставится перед подлежащим: **Has** he **been asking**? **Had** you **been asking**? **Will** they **have been asking**?
- В *отрицательной* форме частица ***not*** ставится после первого вспомогательного глагола: He **has *not* been asking**. You **had *not* been asking**. They **will *not* have been asking**.
- В *вопросительно-отрицательной* форме частица ***not*** ставится после подлежащего: **Has** he ***not*** **been asking**? **Had** you ***not*** **been asking**? **Will** they ***not*** **have been asking**?

The Present Perfect Continuous употребляется:

1. Для выражения действия, которое началось в прошлом, длилось определенный период времени и еще не завершилось к моменту речи.

We **have been applying** these methods of investigation for a long time.	*Мы применяем эти методы исследования уже в течение долгого времени.*
He **has** not **been visiting** his parents since February.	*Он не был у своих родителей с февраля.*
For how long **have** they **been considering** the new method?	*Как долго они обсуждают новый метод?*
Since when **have** you **been working** at the university?	*С каких пор вы работаете в университете?*

2. Для выражения действия, которое началось в прошлом, длилось некоторое время и закончилось непосредственно перед моментом речи.

I feel tired as I **have been translating** the article for two hours.	*Я чувствую себя усталым, так как 2 часа я переводил статью.*

The Past Perfect Continuous употребляется:

1. Для выражения действия, которое началось в прошлом, длилось определенный период времени до другого момента либо действия в прошлом и еще не завершилось.

They **had been learning** the examination material since 10 o'clock when you came.	*Они учили экзаменационный материал с 10 часов, когда вы пришли.*
We **had been trying** to come to a certain agreement for 2 hours when you came.	*Мы пытались достичь определенного соглашения уже 2 часа до того, как вы пришли.*

2. Для выражения действия, которое началось в прошлом, длилось определенный период времени и завершилось непосредственно перед наступлением другого прошедшего действия.

I **had been working** at my project for two hours when you called me.	*Я уже 2 часа работал над своим проектом, когда ты мне позвонил.*

The Future Perfect Continuous употребляется:

Для выражения длительного действия, которое будет протекать некоторый период времени до другого момента в будущем и все еще будет совершаться в этот момент. Эта форма употребляется очень редко.

By the end of the year he **will have been working** at his book for 2 years.	*К концу года он будет работать над своей книгой уже 2 года*.

THE PASSIVE VOICE
(Страдательный залог)

В русском и английском языках существуют два залога:

Действительный залог (The Active Voice)	**Страдательный залог** (The Passive Voice)
The student **solved** the problem. *Студент решил задачу.*	The problem **was solved** (by the student). *Задача была решена* (*студентом*).

В *действительном* залоге подлежащее выполняет действие, выраженное сказуемым. В *страдательном* залоге действие направлено на подлежащее, а носителем действия является дополнение. Соответственно, когда говорящего в первую очередь интересует объект какого-то действия, а лицо или предмет, совершающий действие, неизвестен или неважен, тогда употребляется страдательный залог. Таким образом, поставив объект действия на первое место в предложении (место подлежащего), мы акцентируем на нем больше внимания. В тех случаях, когда также необходимо акцентировать внимание и на носителе действия, употребляется предлог *by*.

Времена страдательного залога образуются при помощи вспомогательного глагола ***to be*** и ***Participle II*** и употребляются согласно тем же правилам, что и соответствующие им формы действительного залога. При спряжении глагола в страдательном залоге изменяется только глагол ***to be***, смысловой глагол остается неизменным в форме ***Participle II***.

	Simple	**Continuous**	**Perfect**	**Perfect Continuous**
Present	**am / is / are asked**	**am / is / are being asked**	**have / has been asked**	←**
Past	**was / were asked**	**was / were being asked**	**had been asked**	←**
Future	**shall / will be asked**	←*	**shall / will have been asked**	←**

* Вместо отсутствующей формы *Future Continuous* употребляется форма *Future Simple.*

** Вместо отсутствующих форм *Perfect Continuous* употребляются формы *Perfect*.

• Для образования *вопросительной формы* на первое место в предложении выводится первая глагольная форма пассивной конструкции.

Were the students **provided** with books?	*Студентов обеспечили учебниками?*

• Для образования *отрицательной формы* частица ***not*** ставится после первой глагольной формы пассивной конструкции.

The article **was *not* translated** into Russian.	*Статья не была переведена на английский язык.*

Способы перевода страдательных оборотов на русский язык

1. При помощи глагола ***быть*** и ***краткой формы причастия***:

This fundamental law **was discovered** in the 20th century.	*Этот основополагающий закон **был открыт** в XX веке.*
The production of electric power **will be doubled** next year.	*Производство электроэнергии **будет удвоено** в следующем году.*
Where **has** this article **been published**?	*Где **была опубликована** эта статья?*

2. Глаголами, оканчивающимися на ***-ся, -сь***:

This question **was being discussed** when he came.	*Этот вопрос **обсуждался**, когда он пришел.*
This technique **is not applied** in their experiment.	*Эта методика **не применяется** в их эксперименте.*

3. ***Неопределенно-личным оборотом*** с глаголом в действительном залоге в ***3-м лице множественного числа***:

The translation **will have been finished** by 5 o'clock.	*Перевод **закончат** к 5 часам.*
I was told that the necessary information **had** already **been obtained**.	*Мне сказали, что нужную информацию уже **получили**.*
What **is being constructed** here?	*Что здесь **строят**?*

4. Глаголами ***в действительном залоге***, если в предложении есть дополнение с предлогом ***by***:

A lot of examples **were given** by the professor during the lecture.	*Во время лекции профессор **привел** множество примеров.*

5. ***Неопределенно-личным оборотом***, когда местоимение ***it*** в составе страдательного залога играет роль формального подлежащего:

***It* is believed** that this experiment will be reproduced in our lab.	***Полагают**, что этот эксперимент будет воспроизведен в нашей лаборатории.*
***It* is known** that the use of the set concept promises the clarification, simplification, and unification in the teaching of mathematics.	***Известно**, что использование понятия множества проясняет, упрощает и унифицирует процесс преподавания математики.*

MODAL VERBS AND THEIR EQUIVALENTS (Модальные глаголы и их эквиваленты)

CAN

Present *can* *cannot* (*can't*) *am/are/is* (*not*) *able to*	**Future** *can, cannot* (*can't*) *shall/will* (*not*) *be able to*	**Past** *could* *could not* (*couldn't*) *was/were able to*
умственная, физическая способность (или их отсутствие), способность сделать что-то в силу обстоятельств, реальная возможность *уметь, мочь, знать, как сделать, иметь право сделать что-либо;* ***to be able to*** (*быть способным к чему-либо, быть в состоянии, иметь силу, власть, ум, возможность что-либо сделать*) – используется вместо отсутствующих видовременных форм глагола **can**, а также как самостоятельный глагол		
1. He **can** swim. *Он умеет плавать.* The situation **can** be improved. *Ситуацию можно улучшить.* С глаголами ***see, hear:*** I **can't** hear anything. *Я ничего не слышу.*	I **can** do it later. *Я могу сделать это позже.* I **shall not be able to** help you. *Я не смогу помочь тебе.*	Повторяющиеся действия, способность делать что-то в прошлом: He **could** read at the age of 5. *Он мог читать в 5 лет.* Однократное успешное действие в прошлом (смог, удалось): He **was able to** win the game. *Он смог победить в игре.*
просьба		
Can you tell me the time? (разг.) *Можешь сказать, который сейчас час?* **Could** you give me a lift? (вежливо) *Не могли бы вы меня подвезти?*		

<table>
<tr><td colspan="2">разрешение/просьба дать разрешение</td></tr>
<tr><td>– You can take the book now. (разг.)
– Можешь взять книгу сейчас.
– Can I use your pen for a moment? (разг.)
– Можно вашу ручку на минуту?
– Could I make a suggestion? (вежливо)
– Можно мне внести предложение?
– Of course, you can/may.
– Конечно можно.</td><td></td></tr>
<tr><td colspan="2">предложение помощи</td></tr>
<tr><td>Can I help you? (разг.)
Я могу вам помочь?
Could I carry that bag for you? (вежливо)
Могу я помочь вам нести сумку?</td><td></td></tr>
<tr><td colspan="2">запрет нельзя – самая частая и нейтральная форма запрета, не разрешено с точки зрения закона или правил</td></tr>
<tr><td>You can't cross the street here.
Здесь нельзя переходить улицу.</td><td>They couldn't wear jeans at work.
Им нельзя было ходить в джинсах на работу.</td></tr>
<tr><td colspan="2">сильное сомнение/удивление не может быть, чтобы (can't), вряд ли (can't), неужели (Can ...?)
– в отрицательных и вопросительных предложениях с любыми формами инфинитива (форма could вместо can делает предположение менее категоричным);
– время совершения действия передается формой инфинитива</td></tr>
<tr><td>с неперфектным инфинитивом – предположение о действии, относящемся к настоящему и будущему:
Can (could) it be so late?
Неужели уже так поздно?
Can (could) they be waiting for us?
Неужели они сейчас нас ждут?
You can't be cold.
Не может быть, чтобы тебе было холодно.
You can't be thinking of leaving now.
Ты не можешь думать об отъезде сейчас.

Can she dislike me?
Неужели я ей не нравлюсь?</td><td>с перфектным инфинитивом – предположение о действии, относящемся к прошлому:
Can (could) it have been so late?
Неужели было так поздно (тогда)?
Can (could) they have been waiting for us? Неужели они нас ждали (тогда)?
He can't have said it.
Не может быть, чтобы он это сказал (тогда).
She can't have been lying.
Не может быть, чтобы она лгала.
(Не могла она лгать.)
She can't have failed to see him.
Не может быть, чтобы она с ним не встретилась.</td></tr>
</table>

MAY

Present *may* *may not*	**Future** *may* (*not*) *shall/will* (*not*) *be allowed*	**Past** *might* *might not* *was/were* (*not*) *allowed*
разрешение/просьба дать разрешение *можно, могу, можете*		
You **may** answer the questions later. (офиц.) *Можете ответить на вопросы позже.* **May** I come in? (вежливо) *Можно войти?* Yes, you **may**. *Можно.* **не очень строгий запрет**: No, you **may not**. *Вам не разрешается.* **категорический отказ**: No, you **mustn't**. *Нет, нельзя, запрещено.* **вежливый отказ**: I'm afraid, you **can't**. *Боюсь, что нет.*	You **may** call me tomorrow. (офиц.) *Можете позвонить мне завтра.* They **will be allowed to** carry out the experiment at our laboratory. *Им разрешат провести эксперимент в нашей лаборатории.*	He said that I **might** borrow his pen. *Он сказал, что я могу взять* (*одолжить*) *его ручку.* (форма **might** в значении разрешения употребляется только в косвенной речи) He **was allowed to** enter the country. *Ему разрешили въехать в страну.*
запрет *нельзя*		
You **may not** talk during the test. (офиц.) *Нельзя разговаривать во время теста.*	You **will not be allowed to** take the exam. *Тебе не разрешат сдавать экзамен.*	We **were not allowed to** tell her everything. *Нам запретили рассказывать ей все.*
сомнение/неуверенность *может быть, возможно* – **might** указывает на меньшую степень уверенности, что действие произошло; – употребляются все формы инфинитива		
предположение о действии, относящемся к *настоящему* и *будущему*: The rain **may (might)** stop later in the day. *Возможно, попозже днем дождь прекратится.* He **may(might)** come tomorrow. *Возможно, он придет завтра.* They **may be living** in the country. *Возможно, они живут за городом* (*сейчас*).		предположение о действии, относящемся к *прошлому*: He **may have been** ill. *Возможно, он болел.* The door **may have been locked.** *Возможно, дверь была заперта.*
возможность (отсутствие препятствий к действию)		
Students **may (can)** express this familiar theorem in terms of an equation. *Студенты могут выразить эту хорошо знакомую им теорему через уравнение.*		She said that we **might (could)** get to the centre of the city by bus. *Она сказала, что мы можем добраться до центра на автобусе.*

Упрек (might) – употребляются перфектный и неперфектный инфинитивы	
упрек по поводу действия, которое еще может быть реализовано: You **might** help us. *Ты мог бы нам помочь.* You **might** visit your friend as he is ill. *Ты мог бы навестить своего друга, он сейчас болеет.*	упрек по поводу нереализованного действия: You **might have phoned**. *Мог бы и позвонить.* (*но не позвонил*) You **might have told** me about it. *Ты мог и сказать мне об этом.*

MUST

Present *must* *must not* (*mustn't*)	**Future** *shall/will* (*not*) *have to*	**Past** *had to, did not have to* *Did you have to ...?*
необходимость/долг/обязанность *должен, нужно, надо* – с местоимением ***I*** необходимость выполнить действие в силу личной убежденности		
You **must** obey these rules. *Ты обязан подчиняться правилам.* I'm afraid I **must** go now. *Боюсь, я должен идти.* – **Must** I do it? – *Я должен сделать это*? – Yes, you **must**. – *Да, должен.* – No, you **needn't**. *Нет, не надо.*	She **will have to** come later. Она должна будет прийти позже.	We **had to** get more exercises. *Мы должны были больше упражняться.*
запрет (жесткая форма запрета)/ **необходимость *не* совершать действие**		
You **mustn't** walk on the grass. *По газону ходить запрещено.* You **must not** miss classes. (*Вам*) *нельзя пропускать уроки.*		He told me I **mustn't** cry. *Он сказал, что я не должен плакать.*
приказание/настоятельный совет		
You **must** leave the room at once. *Немедленно покиньте комнату.* You **must** revise for your test. *Ты должен все повторить к тесту.*		
почти уверенность *вероятно, должно быть* – употребляются все формы инфинитива		
предположение о действии, относящемся к *настоящему*: She **must** be about twenty. *Ей должно быть около 20.*	предположение о действии, относящемся к *будущему* (используются эквивалентные выражения): The weather **is likely to** change. *Вероятно, погода изменится.*	предположение о действии, относящемся к *прошлому*: She **must have known** about it. *Должно быть, она об этом знала.*

Probably he doesn't know English. (с отрицанием) *Должно быть, он не знает английский.*	**Probably,** he will speak English. *Он, должно быть, будет говорить по-английски.*	**Probably**, she didn't know my address. (с отрицанием) *Должно быть, она не знала мой адрес.*

TO HAVE TO

Present *have/has to* *have got to/has got to* *do/does not have to* *Do you have to ...?*	**Future** *shall/will (not) have to* *Will you have to ...?*	**Past** *had to,* *did not have to* *Did you have to ...?*
необходимость/обязанность (возникающая из-за обстоятельств) *должен, нужно, надо, приходится, вынужден*		
She **has to** look for a new job. *Ей приходится искать новую работу.* **I've got to** go now. *Мне надо идти.* (**have got to** употребляется только в настоящем времени)	I **shall have to** speak to them about this plan. *Мне придется поговорить с ними об этом плане.*	He **had to** return home. *Ему пришлось возвратиться домой.*
отсутствие необходимости *не нужно, не надо, не приходится*		
We **don't have to** attend classes on Sunday. *Нам не нужно ходить на занятия в воскресенье.*	He **won't have to** come back till April. *Ему не придется возвращаться до апреля.*	She **didn't have to** take a taxi. *Ей не пришлось брать такси.*

TO BE TO

Present *am/is/are(not) to*	**Future** *am/is/are (not) to*	**Past** *was/were(not) to*
необходимость, предусмотренная планом, договоренностью, расписанием/ожидаемое, запланированное действие/ предопределенное событие *должен, предстоит, суждено*		
What **am** I **to** do? *Что я должен делать*? (*каковы распоряжения*?) The train **is to** come at 7. *Поезд должен прибыть в 7 часов.* You **are to** make a report at the conference. *Ты должен делать доклад на конференции.* They **are to** arrive in London tonight. *Они должны прибыть в Лондон сегодня вечером.*		You **were to** stay here. *Ты должен был остаться здесь.* (выполнено ли действие или нет – неизвестно) He **was** never **to** see her again. *Ему не суждено было увидеть ее снова.* запланированное действие в *прошлом*, которое не произошло: ***was/were to*** + ***Perfect Infinitive*** We **were to have met** at the station. *Мы должны были встретиться на вокзале.* (*но не встретились*)

строгий приказ/инструкции *должен, не должен, не делай, не смей делать*	
You **are to** finish your article tomorrow. *Вы должны закончить статью завтра.* No-one **is to** leave the room! *Никому не покидать комнату!*	

NEED

need (модальный) -*нужно, надо*- употребляется только в форме Present Indefinite преимущественно в вопросительных и отрицательных предложениях.		
Present *need, needn't*	**Future** *need, needn't*	**Past** –
необходимость *нужно, надо* – в вопросительных предложениях выражает сомнение в целесообразности выполнения действия		
Need we go to the library tomorrow? *Нам завтра нужно идти в библиотеку*? **Need** I do the whole exercise? *Мне надо сделать все упражнение*? Yes, you **must**. No, you **needn't.**		
отсутствие необходимости *не нужно, не надо, незачем; зря*		
He **needn't** speak to her about it. *Ему не нужно говорить с ней об этом.* I **needn't** get up early today. *Мне не надо сегодня рано вставать.* You **needn't** wait any longer. *Тебе не надо больше ждать.*		***needn't*** **+** ***Perfect Infinitive*** **–** выражает отсутствие необходимости совершать действие в прошлом, но действие было совершено: He **needn't have performed** the operation of division first. *Зря он сначала выполнил деление.*
need (смысловой) – *нуждаться, нужно, надо* – имеет те же временные формы, что и обычные глаголы, употребляется в сочетаниях с существительными; с глаголами – для выражения необходимости выполнения привычного, повторяющегося действия		
Present *need, needs, don't need, doesn't need*	**Future** *shall/will need*	**Past** *needed, didn't need*
I **don't need** to work at the lab every day. *Мне не надо каждый день работать в лаборатории.*	I'**ll need** your help. *Мне будет нужна твоя помощь.*	We **needed** the dictionary badly. *Нам очень нужен был словарь.* He **didn't need** to stay after classes. *Ему не надо было оставаться после уроков.*

SHOULD, OUGHT TO

Present *should* (*not*), *ought* (*not*) *to*	**Future** *should, ought* (*not*) *to*	**Past** -----
совет *следует, должен* – чаще употребляется *should*, показывает личную заинтересованность		
You **should** try again. *Тебе следует снова попытаться.* He **should** be more careful about his health. *Ему следует более внимательно относится к своему здоровью.*		
обязанность/моральный долг *следует, должен* – чаще употребляется *ought to*		
You **ought to** tell your parents the truth. *Ты должен сказать своим родителям правду.* I **ought to** help my sister about the house. *Я должен помогать моей сестре по дому.*		
почти уверенность *должно быть, вероятно, по-видимому* – эквивалент глаголу *must* в этом значении, но используется только для предположений о *настоящем* и *будущем*; – уверенность в совершении действия основана на каких-то известных говорящему или вытекающих из контекста фактах		
It's 10 o'clock. He **should/ought to** be at work. *Сейчас 10 часов. Он, должно быть, на работе.* He **should** pass his exam easily. He is good at maths. *Он должен легко сдать экзамен. Он хорошо знает математику.*		
недоумение/удивление/несогласие (выраженное вопросом)		
Why **should** I go there? *Чего ради мне идти туда?* Why **should** I always wait for you? *Почему я должен всегда тебя ждать?*		
критика *не следовало, не надо было* – критика по поводу действия, которое было совершено или не совершено; – употребляется перфектный инфинитив		
	You **shouldn't have read** the letter. *Вам не следовало читать письмо.* We **should have done** it long ago. *Нам давно следовало это сделать.*	

THE PARTICIPLE
(Причастие)

Причастие – неличная форма глагола, которая наряду со свойствами глагола имеет свойства прилагательного или наречия.

	Active	Passive	
Present Participle (Participle I)	**doing**	**being done**	Выражает действие, одновременное с действием глагола-сказуемого
Past Participle (Participle II)	–	**done**	Выражает действие, одновременное с действием глагола-сказуемого или предшествующее ему.
Perfect Participle (Participle I)	**having done**	**having been done**	Выражает действие, предшествующее действию глагола-сказуемого

Наиболее частотные формы в текстах научного содержания – это *Participle I* (discussing, being discussed) и *Participle II* (discussed).

Doing
(*Present Participle Active)*

В предложении выполняет функции:
1) ***определения*** (an attribute)

We see that in the second case the points **belonging** to the x-axis become singular points.	*Мы видим, что во втором случае точки, принадлежащие оси X, становятся особыми точками.*
The definitions must give **distinguishing** characteristics of the element or relation involved.	*Определения должны давать отличительные характеристики рассматриваемого элемента или отношения.*

2) ***обстоятельства*** (an adverbial modifier)

When (while) **choosing** some other kind of functional relation, we often try to introduce new variables.	*Выбирая какой-нибудь другой вид функционального отношения, мы часто пытаемся ввести новые переменные.*
Using math language, we avoid vagueness and unwanted extra meanings of our statements.	*Используя язык математики, мы избегаем неясности и нежелательных дополнительных значений наших утверждений.*

3) ***части сказуемого*** (a part of a predicate) для времен группы *Continuous* и *Perfect Continuous*

They are **investigating** various aspects of this matter now.	*Сейчас они изучают различные аспекты этого вопроса.*
They have been **using** this system since October.	*Они используют эту систему с октября.*

Being done
(*Present Participle Passive)*

В предложении выполняет функции:

1) ***определения*** (an attribute)

The problem **being investigated** is the most important one.	*Исследуемая проблема – самая важная.*
The procedure **being used** seems complicated.	*Процедура, которая используется, кажется сложной.*

2) ***обстоятельства*** (an adverbial modifier)

Being invited too late, he couldn't go to the conference.	*Так как его пригласили слишком поздно, он не смог поехать на конференцию.*

3) ***части сказуемого*** (a part of a predicate)

The result of their work **was being discussed** during the recent meeting.	*На последнем собрании обсуждался результат их работы.*

Done
(*Participle II)*

В предложении выполняет функции:

1) ***определения*** (an attribute)

Thus we obtained the **required** result.	*Таким образом, мы получили требуемый результат.*
An expression **composed** of numbers, letters and signs is called an algebraic expression.	*Выражение, состоящее из цифр, букв и знаков, называется алгебраическим выражением.*
The terms **insisted** upon are difficult to fulfill.	*Условия, на которых настаивают, сложно выполнить.*

2) ***обстоятельства*** (an adverbial modifier)

Used as scientific terms, these concepts have different meanings.	*Когда эти понятия используются в качестве научных терминов, они имеют другое значение.*
Considered from this point of view, the question will be of great interest.	*При рассмотрении (если его рассматривать) с этой точки зрения вопрос представит большой интерес.*
Unless otherwise stated, the values used are taken in the decimal system.	*Если не оговорено особо, используемые величины берутся в десятичной системе.*
Given the measure of the circumference, you can find the area of the interior of the circle.	*Если дана длина окружности, вы можете найти площадь круга.*

3) ***части сказуемого*** (a part of a predicate)

The general theory of such equations **was given** earlier.	*Общая теория таких уравнений была дана ранее.*
This system of equations **will be solved** next time.	*Эта система уравнений будет решена в следующий раз.*

Having done
(Perfect Participle Active)

Having been done
(Perfect Participle Passive)

В предложении выполняет функции:

1) ***обстоятельства*** (an adverbial modifier)

Having understood this, he then turned his attention to the third basic concept of Newtonian mechanics.	*Поняв это, он затем обратился к третьей основной концепции механики Ньютона.*
Having obtained sufficient information, the scientists continued research.	*Получив достаточно информации, ученые продолжили исследование.*
Having been expressed in math terms, the theorem gave a general method of calculating the area.	*Когда эту теорему выразили в математических терминах, она дала общий метод вычисления площади.*
Having been properly **approached**, the problem appeared easy to solve.	*Когда задачу изучили надлежащим образом, оказалось, что она легко решается.*

The Objective Participial Construction
(Объектный причастный оборот)

1. После глаголов ***to see, to watch, to hear, to feel, to find, to leave*** и др.

They watched **the temperature** gradually **rising**.	*Они следили (за тем), как постепенно повышается температура.*
I saw **her drawing** a rectangle.	*Я видел, как она чертит прямоугольник.*
When we came back, we found **them** still **discussing** the problem.	*Когда мы вернулись, мы обнаружили, что они все еще обсуждают эту проблему.*

2. После глаголов, выражающих желание: ***to want, to wish***

We want this **plan realized** immediately.	*Мы хотим, чтобы этот план был немедленно осуществлен.*
The teacher wanted the **problem solved** during the lesson.	*Учитель хотел, чтобы задачу решили во время урока.*

3. После глаголов ***to have, to get*** этот оборот употребляется, чтобы показать, что действие совершается не самим подлежащим, а другим лицом для него или за него.

I had my **article translated** into English last week.	*На прошлой неделе мне перевели статью на английский язык.*
He is having his **computer fixed** now.	*Ему сейчас чинят компьютер.*
They had new **equipment installed** in the laboratory.	*Им установили новое оборудование в лабораторию.*
They got their **children educated** in the best British universities.	*Их дети обучались в лучших британских университетах.*

The Subjective Participial construction
(Субъектный причастный оборот)

1. После глаголов ***to see, to watch, to hear, to find, to leave, to keep*** и др.

He was seen **leaving** the laboratory.	*Видели, как он уходил из лаборатории.*
They were heard **discussing** the agenda of the conference.	*Слышали, как они обсуждали повестку дня конференции.*

The Absolute Participial Construction
(Самостоятельный причастный оборот)

В самостоятельном причастном обороте функцию подлежащего выполняет существительное в общем падеже, местоимения *this*, *it* или слово *there*, а причастие в любой форме, не являясь личной формой глагола, выполняет функцию *сказуемого*.

Самостоятельный причастный оборот **всегда отделяется запятой**. Если он стоит **в начале предложения**, то переводится обстоятельственным придаточным предложением, вводимым союзами ***если***; ***так как***; ***поскольку***; ***ввиду того что***; ***после того как***; ***когда***.

My colleague **being** away, I had to take the decision myself.	*Так как мой товарищ по работе отсутствовал, мне пришлось самому принять решение.*
There **being** many people in the conference hall, we couldn't enter it.	*Так как в зале было много народу, мы не могли войти.*
The first results **having been obtained**, they decided to continue the experiment.	*Когда были получены первые результаты, они решили продолжить эксперимент.*

Если этот причастный оборот стоит **в конце предложения**, то переводится самостоятельным предложением, которое начинается одним из союзов: ***причем***; ***в то время как***; ***а***; ***и***.

The previous chapter dealt with polygons, this type of geometric figures **being** very important in studying geometry.	*Предыдущая глава касалась многоугольников, причем этот вид геометрических фигур очень важен при изучении геометрии.*

Самостоятельный причастный оборот может вводиться предлогом ***with*,** который на русский язык не переводится.

With the first question **considered**, we can pass over to the next one.	*Так как первый вопрос рассмотрен, мы можем перейти к следующему.*

SOME, ANY, NO

Утвердительные предложения	
some (и производные: ***somebody***, ***someone*** , ***something***, ***somewhere***)	He asked me **some** questions. *Он задал мне несколько вопросов.* I've read it in **some** book.

употребляется в значении *несколько, немного, какие-то, какие-нибудь, какой-то, некоторые*	*Я прочитал это в какой-то книге.* **Some** people don't like music. *Некоторые люди не любят музыку.* I've got **some** time. *У меня есть время* (*немного времени*).
some употребляется перед числительными в значении *около, приблизительно*	**Some** 30 students attended the lecture. *Около 30 студентов присутствовали на лекции.*
any употребляется в значении *любой*	You may come at **any** time. *Можете прийти в любое время.*
any (и производные) употребляется с такими отрицательными словами, как: *never, hardly, without, little, seldom, rarely, few, to refuse, to deny, to fail, to prevent, etc.*	I *hardly* know **anything** about this theory. *Я едва ли знаю что-либо об этой теории.* When asked about his research, he *refuses* to give **any** details. *Когда его спрашивают о его исследовании, он отказывается что-либо рассказывать.*
any (и производные) употребляется в условных предложениях	If you get **any** information, let me know. *Если получишь (какую-нибудь) информацию, дай мне знать.*
any (и производные) употребляется в общих косвенных вопросах	He asked if there was **anything** interesting in the article. *Он спросил, было ли в статье что-нибудь интересное.*
Вопросительные предложения	
any (и производные: ***anyone***, ***anybody***, ***anything***, ***anywhere***) употребляется в значении *какие-то, какие-нибудь, немного, всякий, любой* в общих вопросах	Have you got **any** English books? *Есть ли у вас* (*какие-нибудь*) *английские книги?* Is there **any** milk in the fridge? *В холодильнике есть молоко?* Did **anybody** see him yesterday? *Кто-нибудь видел его вчера?*
some (и производные) употребляется в специальных вопросах	Why didn't you buy **some** cheese? *Почему ты не купил сыра?*
some (и производные) употребляются для выражения просьбы или предложения	Would you like **some** tea? *Хотите чая?* Can I have **some** water? *Можно мне* (*немного*) *воды*?

Отрицательные предложения с местоимениями **no, nobody, no one, nothing, none** содержат ***глагол-сказуемое в утвердительной форме,*** так как в английском предложении возможно только одно отрицание	
No (эквивалентно ***not*** **any** и ***not*** **a/an**) употребляется в значении *ни один, никакой*	I have **no** publications. I do **not** have **any** publications. *У меня нет (никаких) опубликованных статей.*
С подлежащим обычно употребляется **no** или **none of**. **None** обычно согласуется со сказуемым в единственном числе.	**No** information has been received from him. *От него не получено никаких сведений.* **None of** my friends misses lectures. *Никто из моих друзей не пропускает лекции.*

Контрольное задание 1

I. Прочитайте текст, переведите его и письменно ответьте на вопросы, следующие за текстом.

Sets

1. The concept of a set of objects or elements is outwardly simple and has an intuitive counterpart in everyday experience. Although the mathematician in formally developing mathematical systems would prefer to consider the term «set» to be undefined, it is easy to suggest clearly both the meaning and the use of the term. A set is any well-defined collection of distinct objects, and it is synonymous with the terms aggregate or class.

2. Although this concept is quite general, one must be careful to observe two things: a set consists of distinct elements of objects, so that every element of a set is a separate object, and no two elements of a set are identical.

3. An element will always be considered as a member (or object) of some set; elements will not be permitted to exist without a parent set. It is evident that stating the property possessed by the elements of a set is the most meaningful way to specify a set. Mathematicians are free to consider sets consisting of a finite number of elements, sets containing infinitely many elements or even sets consisting of only one element, say the set *{a}*. Indeed, one-element sets are very important, for the set *{a}* is not the same thing as the element *a*. Furthermore, the elements of sets may be any definite objects whatever and they may themselves be sets (in which case the set will be called «a collection of sets» rather than a set of sets). The «empty set» or the set

which consists of no elements will also be admitted into the family sets. Although it may appear strange to admit the existence of the «empty or null set», this concept is not as artificial as it might first appear to be.

Operations with Sets

4. Two elements are equal, $x = y$, if x and y are the same element. Thus the word «equals» in mathematics means that the elements x and y are two names for the same object. This leads to a definition for the equality of two sets: The sets A, B are equal if they contain the same elements. If we are given a set, it seems natural to think of subdividing the set and to consider parts of it. Parts of a set are called subsets. The set R is a subset of the set T if every element of R is an element of T.

5. The Union of the sets A and B is the set of all elements which belong either to A or to B or to both A and B.

6. The product (or intersection) of the sets A and B is the set of elements which belong to both A and B.

7. The difference $B - A$ is the subset of B whose elements are not in A.

It is required that an element should be a member of some set, and all sets under discussion should be subsets of some given (or universal) set.

Questions:

1. What is a set? 2. What is the most meaningful way to specify a set? 3. What is an empty set? 4. When are two sets equal? 5. In what case is the set R called a subset of the set T? 6. Why are one-element sets very important?

II. Перепишите и письменно переведите 1-й и 3-й абзацы текста.

III. Переведите письменно предложения, обращая внимание на перевод ***модальных глаголов****.*

1. We were able to express this algebraically by taking coordinates in the Euclidian plani. 2. Must we write the corresponding relations? – No, you needn't. 3. This system may be solved in another way without reducing it to an equation of the n-th order. 4. It is to be expected that the axioms which we obtain will be very intuitive. 5. Do they have to reverse their approach to the problem? – No, they needn't. 6. He should specify the conditions of the experiment.

IV. Выберите правильный вариант формы глагола в ***страдательном*** *или в* ***действительном залоге****. Переведите письменно предложения, учитывая способы перевода страдательного залога и порядок слов в русском и английском языках.*

1. This method (will be followed/will follow/will have followed) in all cases. 2. By equivalent transformations every linear equation with one variable

(brought/was brought/was bringing) to this general form. 3. The set theory (is being discussed/discusses/is discussing) now. 4. Before an algebraic symbolic language (has been developed/had been developed/had developed), equations were written in words. 5. We sometimes (encounter/are encountered/is encountering) integrals whose limits of integration can depend on a parameter. 6. The early geometers (deals/dealt/were dealt) with measurements of line segments, angles and other figures in a plane.

V. Переведите письменно предложения, обращая внимание на различные значения глагола ***to have****.*

1. Two non-parallel planes always have a line in common which is called a line of intersection. 2. The existence or nonexistence of the proof had to be developed. 3. You should have your course paper checked by your science advisor. 4. From the geometrical point of view we have obtained the totality of all the possible straight lines passing through the origin of coordinates. 5. We had been discussing the problem for two hours when you came. 6. The circumference of a circle has not always been clearly defined.

VI. Переведите письменно предложения, принимая во внимание особенности перевода на русский язык ***причастий*** *и* ***причастных оборотов****.*

1. While discussing trigonometric functions of one of the acute angles of a right triangle, it is often helpful to use a modification of the original definitions. 2. When applied carefully, this method may prove to be very useful. 3. Having obtained the necessary devices, we could finish our experiment. 4. Having been read the book was taken back to the library. 5. Drawing a picture of two intersecting lines the student understands better the idea of the interior and exterior of the angles obtained. 6. The set being considered contains no elements. 7. I saw her working at her thesis.

VII. Переведите письменно предложения, содержащие ***независимые причастные обороты****, учитывая при переводе их место в предложении.*

1. The values of the unknowns being very large, we cannot calculate the equation by ordinary methods. 2. The measure of the circumference given, you can find the area of the interior of the circle. 3. Approximate integration methods are discussed in Chapter 5, their significance being increased by the fact that integrable systems occur so rarely in reality. 4. This system consists only of one equation, the other being its consequence. 5. With the distance having been defined, you can expect to find the speed. 6. The result can also be denoted as in the figure given above, with force F neglected.

VIII. Выберите правильный вариант и письменно переведите предложения.

1. There are (any/some/nothing) problems that are impossible to solve. 2. Are there (some/any/anything) equations in this text? 3. He doesn't know (nothing/anything/something) about this method. 4. You may take (nothing/anything/somewhere) you like. 5. (Nobody/Nothing/Anything) can perform the drawing in a better way. 6. Can you present (some/nothing/something) proofs of the theorem?

Контрольное задание 2

I. Прочитайте текст, переведите его и письменно ответьте на вопросы, следующие за текстом.

The Language of Sets

1. Set theory is a language. Without it, not only can we do modern mathematics, we can't even say what we are talking about. It is like trying to study French literature without knowing any French. The theory of sets, initiated by the German mathematician Cantor (1842–1918), constitutes the basis of almost all modern mathematics.

2. A set is often described as a collection of objects of any specified kind. However, such descriptions are no definitions as they merely replace the term "set" by other undefined terms. Thus the term "set" must be accepted as a *primitive notion*, without definition. The objects belonging to the set are the elements or members of the set. Although in introducing set theory it is helpful to work with concrete sets, whose members are real objects, the sets of interest in mathematics always have members which are abstract mathematical objects; the set of all circles in the plane, the set of points on a sphere, the set of all numbers.

3. We shall build up an algebra of sets. As in ordinary algebra, we shall use letters to represent sets and elements. We shall generally use small letters for elements and capital letters for sets, but it is impossible to keep rigidly to this convention because sets can themselves be elements of other sets.

4. A set is known if we know what its elements are. There are many ways of specifying a set, of which the simplest is to list all the members. The standard notation for this is to enclose the list in curly brackets. Two sets are equal if they have the same elements.

5. Instead of a list, we give a property which specifies precisely the elements we wish to be included in the set. If we are careful with our definitions this is as good as a list, and is usually more convenient. For sets with infinitely many members it is in any case impossible to give a complete list. The same is true for sets with a sufficiently large finite set of elements.

6. Sets with one element must not be confused with the element itself. It is not true that x and $\{x\}$ are equal. It is confirmed by the observations that $\{x\}$ has just one member, namely x, while x may have any number of members depending on whether or not it is a set, and if it is, which set.

Questions:

1. What is a set? 2. How are the objects of the set called? 3. In what case is a set considered to be known? 4. Which is the simplest way of specifying a set? 5. When are two sets equal? 6. What is the standard notation for a set? 7. What letters are generally used to represent elements of sets?

II. Перепишите и письменно переведите 2-й и 5-й абзацы текста.

III. Переведите письменно предложения, обращая внимание на перевод ***модальных глаголов****.*

1. Now we will be able to use transformation concept. 2. Must we consider the general principles of analytic continuation? – No, you needn't. 3. Some of the quantities may be obtained as a result of the experiment. 4. If a more complicated mathematical function $f(x)$ is to be calculated, one must express it in such a way that only four basic operations have to be applied. 5. Does he have to refer to this issue again? – No, he needn't. 6. I failed to find the solution, I think I ought to try again.

IV. Выберите правильный вариант формы глагола в ***страдательном*** *или в* ***действительном залоге****. Переведите письменно предложения, учитывая способы перевода страдательного залога и порядок слов в русском и английском языках.*

1. A polynomial (are being made/is made/makes) up of several monomials. 2. The correctness of this assertion (is being verified/was being verified/had been verified) now. 3. Many of these functions (have been investigated/ investigated/had been investigated) in detail long before we started to work with them. 4. We shall avoid such complications if we (perform/shall perform/performed) only equivalent transformations. 5. Modern maths (began/was begun/begin) in ancient Greece. 6. The first systematic representation of calculus of finite differences (was given/gave/had been given) by Taylor in 1715.

V. Переведите письменно предложения, обращая внимание на различные значения глагола ***to have****.*

1. This system always has a solution, since the determinant of its coefficients never vanishes because y' and y'' are linearly independent. 2. We have to perform some additional operations on the set of real numbers. 3. We shall have the results of the experiment published next week. 4. We have just distinguished the value *b* from the element *b* of *Y*. 5. The computer has been working for two hours since morning. 6. The value of this function has already been determined.

VI. Переведите письменно предложения, принимая во внимание особенности перевода на русский язык ***причастий*** *и* ***причастных оборотов****.*

1. When substituting *y* and *z* into the equation, we finally evaluate *x*. 2. Given two points *A* and *B*, we can draw a line connecting them. 3. Having supposed the inequality, we obtained the necessary results. 4. Having been expressed in terms of symbols, these relations produced a formula. 5. The method applied in this case will give good results. 6. The methods being represented are the most important ones. 7. We saw him writing a report.

VII. Переведите письменно предложения, содержащие ***независимые причастные обороты,*** *учитывая при переводе их место в предложении.*

1. The problem having been stated, the students began solving it. 2. The speed of light being extremely great, we cannot measure it by ordinary methods. 3. In the solution of a quadratic equation all the terms are transposed to the left member, the right one being equal to zero. 4. Thus he considered a curve to be described by a moving point, the point being the point of intersection of two moving lines which were always parallel to two fixed lines at right angles. 5. We continued our work, with our laboratory assistants helping us. 6. With the experimental work completed, they could publish the results obtained.

VIII. Выберите правильный вариант и письменно переведите предложения.

1. Give that task to (nothing/somebody/anything) else. 2. Is there (somebody/anybody/everybody) to help you find the proof of the theorem? 3. You can't find this book (somewhere/nowhere/anywhere), it is practically unavailable. 4. Using only a straightedge and a compass, the Greeks could easily divide (no/any/something) line segment into any number of equal parts. 5. (Nobody/Nowhere/No) can draw figures with such a high degree of accuracy. 6. Can you show me (some/no/anything) of your articles on this topic?

Контрольное задание 3

I. Прочитайте текст, переведите его и письменно ответьте на вопросы, следующие за текстом.

The Empty Set and Subsets

1. A set with no elements is called an empty set. Instead of saying that there are no objects of some specific kind, the set of these elements is said to be empty; however this set itself, though empty, will be regarded as an existing thing.

2. All empty sets are equal. Recall that two sets are equal if they have the same members. If they are unequal, then they do not have the same members, so one of then must have at least one member that the other does not have. In particular, one of them must have a member. If they are both empty, this is not the case; so they are unequal. Therefore they must be equal.

3. The empty set is not "nothing". It is just as much in existence as any other set. It is its members that do not exist. It must not be confused with the number 0: for 0 is a number whereas Ø is a set. Ø is one of the most useful sets in mathematics. One of its uses is to express concisely that something does not happen.

4. Once a set has been formed, it is regarded as a new entity, that is, a new object, different from any of its elements. This object may, in its turn, be an element of some other set. For example, the set of all even numbers is part of the set of all whole numbers. A set S is called a subset of a set T provided that every member of S is a member of T.

5. Every set is a subset of itself, because all of its members are members of it. One nice property of subsets is that a subset of a subset is itself a subset: if $A \leq B$ and $B \leq C$ then $A \leq C$. For if every element of A is an element of B, and if every element of B is an element of C, then every element of A is an element of C.

6. Sets may be combined together to give other sets. Prominent among the infinite number of possible ways of combining them are the union and intersection of sets. The union of two sets S and T is the set whose elements are those of S, together with those of T. We use the symbols $S \cup T$. In a similar fashion the intersection $S \cap T$ is the set whose members are the elements which are common to S and T. The symbols $\cup$ and $\cap$ obey various general laws in the same way that addition and multiplication of numbers obey certain general laws.

Questions:

1. What is an empty set? 2. When are two sets equal? 3. What is the difference between 0 and an empty set? 4. In what case is the set S called a subset of the set T? 5. What is one of the properties of subsets?

II. Перепишите и письменно переведите 2-й и 5-й абзацы текста.

III. Переведите письменно предложения, обращая внимание на перевод ***модальных глаголов****.*

1. I am able to make a drawing of this figure. 2. In the discussion of these problems two stages must be distinguished. 3. A parabola may be regarded as an ellipse with one of its foci removed into infinity. 4. It is to be noted that this procedure applies only to interior points of the interval. 5. Do we have to define conic sections? – No, you needn't. 6. The text should be read and reread as many times at home as it is necessary for every student to grasp the meaning.

IV. Выберите правильный вариант формы глагола в ***страдательном*** *или в* ***действительном залоге****. Переведите письменно предложения, учитывая способы перевода страдательного залога и порядок слов в русском и английском языках.*

1. Polynomials (were studied/had been studied/was studied) at the previous lesson. 2. The sum of sets of solutions of these systems (will consider/will have considered/will be considered) later on. 3. The theoretical character of the issue (was being discussed/ is being discussed/is discussing) now. 4. It was pointed out that equations of the n-th order (had been introduced/ introduced/have been introduced) in a similar way earlier. 5. Riemann (was introduced/introduced/ introduce) a more general kind of geometry. 6. These propositions (require/are required/will be required) proofs which will be omitted here.

V. Переведите письменно предложения, обращая внимание на различные значения глагола ***to have****.*

1. His diagram has certain advantages. 2. One often has to establish what kinds of solutions exist. 3. We must have all the equipment packed by tomorrow. 4. We have just represented any real number either exactly or approximately by using the point. 5. I haven't been doing any research since last year. 6. Have these fractions been reduced?

VI. Переведите письменно предложения, принимая во внимание особенности перевода на русский язык ***причастий*** *и* ***причастных оборотов****.*

1. Adding fractions in arithmetic, you must determine the least common denominator of the fractions involved. 2. The function f belonging to one of these classes depends on one variable x and can be real or complex. 3. If changed a little, the problem will be easy to solve. 4. Having performed the

necessary operations, they obtained the differential equation of the second order. 5. Having been disappointed by the results, we changed the lines of our research. 6. The right member of the equation being considered contained no unknowns. 7. I heard them discussing the term "*if and only if*".

VII. Переведите письменно предложения, содержащие ***независимые причастные обороты,*** *учитывая при переводе их место в предложении.*

1. The theorem being true, we must not assume that its converse must be true. 2. All the necessary changes having been made, the experiment showed different results. 3. We may use two different methods, the first being the more general one. 4. A simple example of his actual method is given by his proof that a parallelogram is divided by its diagonal into two triangles, each having half the area of the parallelogram. 5. With an object moving at constant speed, the distance covered is directly proportional to time. 6. We have drawn a triangle, with the measure of its altitude being three times the measure of its base.

VIII. Выберите правильный вариант и письменно переведите предложения.

1. (Some/Any/No) notions cannot be defined in a precise and explicit way. 2. Did he find (something/anything/anywhere) as a result of this operation? 3. They needn't perform (any/no/some) other construction. 4. You may come at (no/any/something) time that is convenient to you. 5. (No/No one/Nobody) mathematician confuses these basic terms. 6. Can I take (any/some/nothing) of these books on topology?

КОНТРОЛЬНАЯ РАБОТА 3

Для того чтобы правильно выполнить контрольные задания № 1, 2, 3, необходимо усвоить следующие разделы грамматики:

1. Инфинитив, его формы и функции.
2. Инфинитивные обороты: инфинитивный оборот с предлогом *for,* именительный падеж с инфинитивом, объектный падеж с инфинитивом.
3. Герундий, его формы и функции. Герундиальный оборот.
4. Местоимение *one* и его функции в предложении.
5. Слова-заместители *that*, *those*, *this*, *these*.

THE INFINITIVE
(Инфинитив)

Инфинитив представляет собой неличную форму глагола, которая только называет действия, не указывая ни лица, ни числа. Формальным признаком инфинитива является частица ***to*.**

Таблица форм инфинитива

Forms	Active	Passive	Sequence of events
Indefinite	**to help**	**to be helped**	Выражает действие, одновременное с действием глагола-сказуемого
Continuous	**to be helping**		Выражает одновременное длительное действие
Perfect	**to have helped**	**to have been helped**	Выражает действие, предшествующее действию глагола-сказуемого (переводится прошедшим временем)
Perfect Continuous	**to have been helping**		Выражает предшествующее длительное действие

Таблица функций инфинитива

Subject *(подлежащее)*	***To read*** much is to know much.	*Много читать – значит много знать.*
	It's nice ***to meet*** you again.	*Приятно встретить тебя снова.*
	To have been treated in such a way was a real shock to her.	*То, что к ней так отнеслись, было настоящим потрясением для нее.*

Part of Predicate (*часть сказуемого*)*	My only desire was ***to leave*** as soon as possible. The train is ***to come*** in time. My aim was ***to publish*** the results of the research. You may ***come*** a bit later.	*Моим единственным желанием было уйти как можно скорей.* *Поезд должен прибыть вовремя.* *Моей целью было опубликование результатов исследования.* *Ты можешь прийти чуть позже.*
Object (*дополнение*) после переходных глаголов, прилагательных, причастий-прилагательных	We are planning (want) ***to finish*** the work today. She was impatient ***to go*** home. I am ashamed ***to tell*** you this.	*Мы планируем (хотим) закончить работу сегодня.* *Ей не терпелось пойти домой.* *Мне стыдно сказать тебе это.*
Attribute *(определение)* Переводится с оттенком модальности или будущности	There are many things ***to be done*** today. He was the first (man) ***to tell*** me about it. Here are some articles ***to be translated*** for tomorrow.	*Сегодня нужно (предстоит) сделать много дел.* *Он был первым (человеком), который рассказал мне об этом.* *Вот несколько статей, которые нужно перевести к завтрашнему дню.*
Adverbial Modifier (*обстоятельство*) а) цели б) следствия (после enough, too, so/such ... as) в) сопутствующие условия	(In order) ***to solve*** this problem we had to involve experts. They are too young ***to make*** such decisions. He reached the island ***to discover*** he had left his fishing rods.	*Чтобы решить эту проблему, нам пришлось привлечь экспертов.* *Они слишком молоды, чтобы принимать такие решения.* *Он добрался до острова и обнаружил, что забыл удочки.*

***** Если подлежащее выражено отвлеченным существительным типа: ***aim***, ***object***, ***purpose*** (*цель*), ***approach*** (*метод*), ***concern*** (*дело, забота*), ***intention*** (*намерение*), ***task*** (*задача*), то сочетание **to be + Infinitive** переводится ***заключаться в том, чтобы*** (***что***).

В остальных случаях эта комбинация будет переводиться ***должен, нужно сделать что-либо.***

ИНФИНИТИВНЫЕ ОБОРОТЫ

Именительный падеж с инфинитивом
или
Сложное подлежащее
(Complex Subject)

Глагол-сказуемое	Примеры	Перевод
1. *В страдательном залоге:* to see to believe to suppose to expect to think to know to announce to report to say etc.	This method ***is known*** to be effective. They ***are said*** to have designed a new device. Single currency ***was considered*** to be a way out. This approach ***may*** easily ***be shown*** to be far more productive.	***Известно****, что этот метод эффективен. (Этот метод,* ***как известно****, эффективен.)* ***Говорят****, они сконструировали новый прибор.* (*Они,* ***как говорят****, ...*) ***Считали*** (***считалось***), *что единая валюта является выходом из положения.* ***Можно*** *легко* ***показать****, что этот подход является гораздо продуктивнее.*
2. *В действительном залоге*: to seem } *казаться* to appear to happen to prove } *оказываться* to turn out	Their team ***seems*** to have won. Your advice ***proved*** to be helpful. He ***appeared*** to be my close relation.	***Кажется****, их команда одержала победу.* *Ваш совет* ***оказался*** *полезным.* ***Оказалось****, он мой близкий родственник.*
3. *Глагол-связка be + прилагательное*: be likely (*вероятно*); be unlikely (*маловероятно, вряд ли*); be sure/ be certain (*несомненно, конечно*)	She ***is unlikely*** to accept my invitation. My parents ***are sure*** to come to my place at Christmas. They ***are certain*** to sign the agreement by the end of December.	***Маловероятно****, что она примет мое приглашение.* ***Несомненно****, мои родители приедут ко мне на Рождество.* ***Конечно****, они подпишут соглашение к концу декабря.*

Объектный падеж с инфинитивом
или
Сложное дополнение
(Complex Object)

Глаголы, выражающие:	**Примеры**	**Перевод**
1. *Желание, намерение* (*в действительном залоге*): to want to expect to desire to consider to wish should } like would }	I don't want him to be punished. We considered this decision to be the best one. They would like it to be done as quickly as possible. The teacher expects his post-graduate to deliver a report at the students' conference.	*Я не хочу, чтобы его наказали.* *Мы считали это решение наилучшим.* *Они бы хотели, чтобы это было сделано как можно скорее.* *Преподаватель полагает, что его аспирант выступит с докладом на студенческой конференции.*
2. *Чувственное восприятие*: to see to observe to watch to hear to notice to feel etc. (инфинитив без **to**)	I saw him pass the paper to the secretary. We often heard her sing that tune. Everybody noticed him lock the door and put the key into his pocket. Nobody observed this value decrease.	*Я видел, как он передал документ секретарю.* *Мы часто слышали, как она напевает эту мелодию.* *Все заметили, как он запер дверь и положил ключ в свой карман.* *Никто не заметил, как эта величина уменьшается.*
3. *Умственное восприятие, предположение*: to know to expect to think to believe to suppose to consider to judge to deduce to understand to find to mean etc.	We believe him to have come back already. He supposes us to finish the work in an hour. Professor expects his group to solve the problem. The ancient Greeks thought that magnetic and electric forces to be of common origin. The biologists found that fact to be unknown to science.	*Мы полагаем, что он уже вернулся.* *Он полагает, что мы закончим работу через час.* *Профессор рассчитывает, что его группа решит эту задачу.* *Древние греки считали, что магнитные и электрические силы имеют одно и то же происхождение.* *Биологи выяснили, что этот факт неизвестен науке.*

4. *Эмоциональное восприятие и волеизъявление*: to (dis)like to love to hate to declare to report to pronounce, etc.	She hated her husband to treat her so rudely. The chairman declared the session to open. The scientist reported his investigation to be over. They don't like the dogs to bark at night.	*Ей не нравилось, что ее муж обращается с ней так грубо.* *Председатель объявил о начале заседания.* *Ученый сообщил, что его исследование закончено.* *Они не любят, когда по ночам лают собаки.*
5. Приказ, принуждение: to get to order to tell to allow to encourage ask to make } + инфинитив to let } без **to**	The teacher made the students do the exercise again. He asked us to take him to the station. The director ordered the secretary to send the documents by mail. Let the children go out. They don't allow visitors to smoke here.	*Учитель заставил студентов выполнить упражнение еще раз.* *Он попросил нас подвезти его на вокзал.* *Директор приказал секретарю отправить документы по почте* *Пусть дети сходят на прогулку.* *Они не позволяют посетителям курить здесь.*

Инфинитивная конструкция
For + noun/pronoun + Infinitive

Инфинитивный оборот с предлогом for, иногда называемый "*for-phrase*", представляет собой конструкцию, где инфинитив состоит в предикативных отношениях с существительным в общем или местоимением в объектном падеже (с предлогом **for**). Они образуют один член предложения: сложное подлежащее (с вводным **it**), именную часть сказуемого, дополнение, определение, обстоятельство.

Подлежащее	It's difficult for the students to translate this text.	***Студентам трудно** перевести этот текст.*
Дополнение	I've brought two books for my son to read.	*Я принесла **сыну почитать** две книги.*
Определение	There is no need for them to go home.	***Им нет необходимости** идти домой.*
Обстоятельство	The day was too hot for us to have a good time.	*День был слишком жаркий, **чтобы мы могли хорошо провести время**.*

GERUND
(Герундий)

Формы герундия

	Active	Passive	The Gerund expresses
Indefinite	**doing** **asking**	**being done** **being asked**	1) одновременное действие с глаголом в личной форме; 2) действие, относящееся к будущему времени; 3) действие безотносительно ко времени его совершения.
Perfect	**having done** **having asked**	**having been done** **having been asked**	действие, предшествующее действию, выраженному глаголом в личной форме

Примечание: Герундий в форме *Active* употребляется со значением герундия в форме *Passive* после глаголов **to need** (*нуждаться*), **to want** (*нуждаться*), **to require** (*требоваться*), **to deserve** (*заслуживать*) и после прилагательного **worth** (*стоящий*).

It is worth while discussing this phenomenon.	*Стоит обсудить это явление.*
The machine needs cleaning.	*Эту машину нужно помыть.*
These clothes want washing.	*Эту одежду нужно постирать*.

После глаголов **to remember** (*помнить*), **to forgive** (*прощать*), **to thank** (*благодарить*) и после предлогов **on (upon)**, **after**, **without** обычно употребляется *Indefinite Gerund*, а не *Perfect Gerund* для обозначения *предшествующего* действия.

I don't remember ever meeting your sister.	*Я не помню, чтобы когда-либо встречал твою сестру.*
On being told the news, she turned pale.	*Когда ей сообщили новость, она побледнела*.

Функции герундия

1. Герундий как **подлежащее** (*subject*) может стоять в начале предложения перед сказуемым, а также после него. В последнем случае он употребляется с местоимением *it* в сочетаниях *to be* (*of*) *no use/no good/ useless* (*бесполезно, нет смысла*), *to make* (*no*) *difference* (*иметь* (*не иметь*) *значение*), *to be worth* (*стоить*).

Travelling makes our life more interesting.	*Путешествие делает нашу жизнь более интересной.*
Watching television seems to be our national sport.	*Кажется, что смотреть телевизор – это наш национальный спорт.*
It's no use arguing with them.	*Нет смысла спорить с ними.*

2. Герундий как **часть составного именного сказуемого** (*predicative*) употребляется после глагола *to be,* с предлогами *against, for,* а также после выражений *to be on the point* (*of*)*, to be far* (*from*)*, etc.:*

I am for introducing school reforms.	*Я за введение школьных реформ.*
The girl is far from being serious.	*Девушка отнюдь не серьезна.*

3. Герундий как **часть составного глагольного сказуемого** *(part of a compound verbal predicate)* употребляется после глаголов, обозначающих начало, продолжение и конец действия: *to begin, to start, to continue, to go on, to keep on, to proceed, to resume, to burst out, to stop, to finish, to cease, to give up, to put off, to postpone, to delay, etc.*

He finished translating the text.	*Он закончил переводить текст.*
Stop arguing and start working.	*Прекратите спорить и начинайте работать.*
They kept on looking behind.	*Они продолжали оглядываться назад.*
The assistant resumed working.	*Ассистент продолжил работу.*

4. Герундий как **прямое дополнение** (*direct object*) употребляется после глаголов, не требующих после себя предлога: *to mention, to remember, to mind, to enjoy, to suggest, to like, to dislike, to prefer, to need, to intend, can/can't afford, to avoid, to need, to require, etc.*

I don't mind going there.	*Я не возражаю пойти туда.*
I enjoy listening to music.	*Мне доставляет удовольствие слушать музыку.*

5. Герундий как **предложное дополнение** (*prepositional object*) употребляется:

а) после следующих глаголов с предлогами:

to keep from (*мешать*)	to account for (*объяснять*)
to accuse of (*обвинять в*)	to rely on (*полагаться на*)
to approve of (*одобрять в*)	to insist on (*настаивать на*)

to suspect of (*подозревать в*)
to get used to (*привыкать к*)
to count on (*рассчитывать на*)
to think of (*думать о*)
to object to (*быть против*)
to succeed in (*удаваться*)
to complain of (*жаловаться на*)
to aim at (*иметь целью*)
to look forward to (*ожидать с нетерпением*)
to prevent from (*препятствовать*)
to persist in (*упорно продолжать*)
to consist in (*заключаться в*) и т. д.

I'm looking forward to visiting you and your family.
Я с нетерпением жду встречи с тобой и твоей семьей.

I don't insist on your translating the whole text.
Я не настаиваю на том, чтобы вы переводили весь текст.

б) после причастий и прилагательных с предлогами:

to be afraid of (*бояться*)
to be responsible for (*быть ответственным за*)
to be proud of (*гордиться*)
to be fond of (*любить что-либо*)
to be tired of (*уставать от чего-либо*)
to be surprised at (*удивляться чему-либо*)
to be busy with (*быть занятым*)

I'm not used to being treated like that.
Я не привык к тому, чтобы со мной так обращались.

Children are fond of listening to fairy-tales.
Дети любят слушать сказки.

6. Герундий как **определение** (*attribute*) употребляется после абстрактных существительных с предлогами:

astonishment (at) – *удивление*
disappointment (at) – *разочарование*
surprise (at) – *удивление*
apology (for) – *извинение*
plan (for) – *план*
preparation (for) – *приготовление*
reason (for) – *причина*, *основание*
experience (in) – *опыт*
skill (in) – *мастерство*, *навык*
art (of) – *искусство*
chance (of), opportunity (of) – *удобный случай*
idea (of) – *мысль*, *идея*
importance (of) – *важность*
intention (of) – *намерение*
means (of) – *средство*
method (of) – *метод*
necessity (of) – *необходимость*
objection (to) – *возражение*
pleasure (of) – *удовольствие*
possibility (of) – *возможность*
problem (of) – *проблема*
process (of) – *процесс*

fear (of) – *страх*
habit (of) – *привычка*
hope (of) – *надежда*
right (of) – *право*
way (of) – *способ*

I saw no other way of doing it.	*Я не видел другого способа, как это сделать.*
The UN was established for the purpose of struggling for peace.	*ООН была основана с целью Борьбы за мир.*

7. Как **обстоятельство** (adverbial modifier) герундий употребляется после предлогов: on (upon) (после, по), after (после), before (перед), in (в то время как, при); for (за), trough (из-за), owing to (благодаря), besides (кроме), instead of (вместо), without (без), apart from (помимо), for the purpose of (с целью), in case of/in the event of (в случае, если), by (путем) и т. д.

She left without saying good-bye.	*Она ушла не попрощавшись.*
Excuse me for interrupting you.	*Извините за то, что я вас перебиваю.*
He improved the article by changing the end.	*Он отредактировал статью, изменив конец.*

The Gerundial Construction

Герундий может образовывать герундиальный оборот, равнозначный придаточному предложению с союзами *то, что (чтобы); тем, что; как.* Элементами герундиального оборота могут быть:

а) ***притяжательное местоимение*** или ***существительное в притяжательном падеже***, если речь идет об одушевленных существительных:

Thank you for your answering my letter.	*Спасибо за то, что ответили на мое письмо.*
I dislike my relatives' interfering in my affairs.	*Мне не нравится то, что родственники вмешиваются в мои дела.*

б) ***существительное в общем падеже***, если речь идет о неодушевленных предметах.

Her words were interrupted by the door opening quietly.	*Ее слова были прерваны звуком открывающейся двери.*

Местоимение *one* и его функции в предложении

1. Если обобщенно-личное местоимение **one** выполняет в предложении функцию подлежащего, то при переводе оно опускается, а сказуемое передается ***неопределенно-личной формой глагола***:

One never knows what may happen.	*Никогда не знаешь, что может случиться.*
One must obey the traffic rules.	*Надо соблюдать правила уличного движения.*
One believes, that	*Считают, что ... .*
One can easily understand, that	*Легко можно понять, что ... .*

2. Обобщенно-личное местоимение **one** в функции ***дополнения*** или совсем не переводится, или передается косвенным падежом от личного местоимения *мы* (*нам, нас*), реже существительным – *человек, люди*.

The new device enables one to examine the process more thoroughly.	*Новый прибор позволяет* (*нам*) *более тщательно исследовать этот процесс.*
It is not easy to convince one in the reality of these facts.	*Нелегко убедить человека в реальности этих фактов.*

3. Как ***слово-заместитель*** **one** употребляется для того, чтобы избежать неоднократного повторения существительного (для единственного числа – **one,** для множественного числа – **ones**). Переводится тем существительным, которое оно заменяет, или опускается.

This method is a conventional **one**.	*Этот метод общепринят* (*является общепринятым методом*).
The latter method differs radically from **the one** mentioned above.	*Последний метод значительно отличается от того* (*метода*), *который упоминался выше.*

Слово-заместитель *that* (*those*)

Поскольку слово-заместитель **one (ones)** обычно не употребляется после существительного в притяжательном падеже, то его либо опускают, либо используют конструкцию **that/those of**, которая заменяет неодушевленные предметы или понятия.

An artist's job is easier	than a miner's.	*Работа художника легче, чем работа шахтера.*
	than that of a miner.	

На русский язык **that/those of** переводится тем словом, которое замещает, или опускается.

The atomic weight of oxygen is greater **than that** of carbon.	*Атомный вес кислорода больше* (*атомного веса*) *углерода.*

Однако **those** может иногда относится к людям при условии, если есть существительные или группа существительного, на которые это слово ссылается.

The public is only interested in generals who win battles, not in **those who** lose them.	*Общественность обычно интересуют генералы, которые выигрывают битвы, а не те* (*генералы*), *которые их проигрывают.*

Слово-заместитель this (these)

Слово-заместитель ранее стоящего существительного **this (these)** переводится личным местоимением в именительном или косвенном падеже, и после него никогда не употребляется существительное.

There are two methods of measuring the conductivity of semiconductors; the first **of these**, which is used more commonly, has a number of advantages.	*Существует два способа измерения проводимости полупроводников; первый из них* (*этих способов*), *который используется чаще, имеет ряд преимуществ.*

Контрольное задание 1

I. Прочитайте текст, переведите его и письменно ответьте на вопросы, следующие за текстом.

Ordinary Differential Equations (Basic Concepts)

1. If a relation exists between a function of one or more variables and some of its derivatives, in the form of an equation in which the independent variables can also occur, then one speaks of a differential equation. Every solution of the differential equation is called a solution or an integral.

2. If the functions occurring in the differential equation depend on only one independent variable, and thus also derivatives with respect to only one variable occur, then one speaks of an ordinary differential equation. On the

other hand if the required functions depend on several independent variables and accordingly partial derivatives occur, one speaks of partial differential equations.

3. The order of a differential equation is defined as the highest order of the derivatives contained in it. A differential equation of the ***n-th*** order can be expressed in the form $F(x, y, y', y'', \dots y^{(n)}) = 0$, F denoting a function of the argument in the bracket. If F is a polynomial function or the argument $y, y', \dots y^{(n)}$, then its degree is equal to that of the differential equation.

4. If the equation $F(x, y, y', \dots y^{(n)}) = 0$, after the substitution of a function $y = \varphi(x)$ and its derivatives $y', y'', \dots y^{(n)}$, becomes an identity in x valid for all x in an interval, then $y = \varphi(x)$ is called a solution or integral, the process of obtaining it being called integration.

5. The solutions are often not elementary functions. It is often sufficient, without insisting on the complete solutions, to determine the analytic properties of a solution in the neighbourhood of a point x_0 and to investigate the uniqueness of the solution and other questions.

Questions:

I. What is a differential equation? 2. What is an integral or a differential equation? 3. What kinds of differential equations do you know? 4. How is the order of a differential equation defined? 5. What is an integration?

II. Письменно переведите 2-й и 5-й абзацы текста.

III. Переведите письменно следующие предложения, обращая внимание на ***функции инфинитива****.*

1. The language to be used here belongs to the first generation of programming languages. 2. To give a true picture of the surrounding matter is the task of natural sciences. 3. To understand the procedure, let us consider the following criteria. 4. Gauss was the first to notice a mistake in his father's calculations. 5. She gave up work in order to have more time with the children. 6. To have made the same mistake twice was unforgivable.

IV. Переведите письменно следующие предложения, принимая во внимание особенности перевода инфинитивных оборотов ***Complex Subject*** *и* ***Complex Object.***

1. The value introduced in the expression turns out to be an imaginary one. 2. All students are supposed to study Newton's laws of mechanics in the first year. 3. We know each source of energy to present its own advantages and disadvantages. 4. These series are certain to be divergent when their terms are

taken with the same sign. 5. Teacher made the pupils open their books and read the rules. 6. Scientists believed the further investigation of a number of other cases to reveal a similar complexity.

V. Переведите письменно следующие предложения, обращая внимание на перевод глагола ***to be с последующим инфинитивом****.*

1. The next stage will be to publish the results of the research. 2. Students were to submit the results of their work yesterday. 3. You are to learn all the new words for the next lesson. 4. The object of the experiment is to prove the results. 5. Our suggestion was to repeat measurements. 6. When working with numerals, one is to be very careful with signs.

VI. Переведите письменно следующие предложения, содержащие ***"for-phrase".***

1. Two conditions must be met for the phenomenon to occur. 2. Was it interesting for you to read this book for the second time? 3. The teacher waited for the students to hand in texts. 4. For the problem to be solved, it must be stated clearly. 5. The student must concentrate on his work for the calculations to be correct. 6. There are too many people here for me to talk to all of them.

VII. Переведите письменно следующие предложения, обращая внимание на ***функции герундия*** *в предложении.*

1. Solving mathematical puzzles is my favourite occupation. 2. We simplify equations by performing all necessary operations. 3. It is worth mentioning that Lobachevsky's ideas influenced greatly not only the development of mathematics, but mechanics, physics, astronomy. 4. After discussing the problem in detail, they found the best solution. 5. We cannot help acknowledging the importance of this statement. 6. I am interested in finding out what she did with all that money.

VIII. Письменно переведите предложения, содержащие ***герундиальные обороты.***

1. His having discovered this phenomenon contributed much to the world science. 2. Would you mind their showing us the whole process? 3. We objected to their initiating experiments without sufficient experimental basis. 4. I don't remember my mother's complaining about it. 5. The Earth's moving around the sun is common knowledge nowadays. 6. He knew nothing of our having realized the program.

*IX. Письменно переведите предложения, обращая внимание на функции слов **one** и **that**.*

1. The simplest mathematical formulation for the function is one based on the use of exponential functions. 2. One should understand, however, that the problem is extremely difficult. 3. One wants to know how to find an actual expression of this function. 4. If the degree of the numerator is lower than that of the denominator, then the fraction is called proper. 5. The function of a new variable is one whose integral can easily be calculated. 6. One is to make a lot of experiments to make sure that his observation is adequate. 7. He is the one you wanted to speak to.

Контрольное задание 2

I. Прочитайте текст, переведите его и письменно ответьте на вопросы, следующие за текстом.

Differential Equations (Introductory)

Equations in which the unknown function or the vector function appears under the sign of the derivative or the differential are called **differential equations**. An **ordinary differential equation** is an equation involving one or more derivatives of the dependent variable y with respect to a single independent variable x. But if the unknown function appearing in the differential equation is a function of two or more independent variables, the differential equation is called **a partial differential equation.**

The order of the equation is that of the highest derivative contained in it, so that the general differential equation of order n can be written in the form

$$F(y^{(n)}, y^{(n-1)}, \dots y^{(1)}, y) = 0 \qquad (1)$$

the symbol y^r denoting $d^r y/dx^r$*. **The degree** of the equation is defined mathematically to be that of its highest order derivative, when the equation has been made rational as far as the derivatives are concerned. The equation

$$y'' = (xy^{5/2}+y')^{1/2} \qquad (2)$$

for example, is of order 2 and degree 2, since the equation must be squared to rationalize the contributions from the derivatives.

We shall refer to an equation of the form

$$y^n + f_{n-1}(x)y^{(n-1)} + f_{n-2}(x)y^{(n-2)} + \dots + f_1(x)y' + f_0(x)y = g(x) \qquad (3)$$

in which the $f_r(x)$ are functions of x only, as **linear**, and any other type of equation will be called **non-linear**. Any ordinary or partial differential equation is said to be linear when the dependent variable and its derivatives occur to the first degree only, and not as higher power or products.

The solution of a differential equation is a function which, when substituted into the differential equation, reduces it to an **identity**. It can be proved that **the most general solution** of an ordinary differential equation of order ***n*** contains ***n*** arbitrary constants. This general solution is called the Complete Primitive, and a Particular Integral is obtained by giving specific values to these arbitrary constants.

The procedure of finding the solutions of a differential equation is called **integration** of the differential equation. In some cases it is easy to find an exact solution, but in more complicated cases it is very often necessary to apply approximate methods of integrating differential equations. Obtaining an exact or approximate solution of initial-value problems is the principal task of the theory of differential equations, however it is often required to determine only certain properties of solutions. For instance, one often has to establish whether periodic or oscillating solutions exist, to estimate the rate of increase or decrease of solutions, and to find out whether a solution changes appreciably for small changes in the initial values.

Questions:

1. What is a differential equation? 2. What differential equation is called ordinary? 3. What determines the order of a differential equation? 4. What is the procedure of finding the solution of a differential equation? 5. What is the principal task of the theory of differential equations?

II. Письменно переведите 2-й и 5-й абзацы текста.

III. Переведите письменно следующие предложения, обращая внимание на ***функции инфинитива****.*

1. The first point to notice is that the above definition does not give a unique value for the integral. 2. Lobachevsky was the first to publish a paper on non-Euclidean geometry. 3. To prove Euclid's fifth postulate became senseless after the discovery of new geometries. 4. To be able to state what the number $2^{\sqrt{3}}$ represents, one has to recall the special definition for a number raised to an irrational power. 5. She learnt typing in order to help her husband with his work. 6. He found it easy to earn extra money.

IV. Переведите письменно следующие предложения, принимая во внимание особенности перевода инфинитивных оборотов ***Complex Subject и Complex Object.***

1. The interpretation of these symbols is thought to be not correct. 2. This student is unlikely to tell a basic difference between linear and non-linear

systems. 3. We expect the latest developments in the field of science to stimulate experiments on a more professional level. 4. The regulations require me to wear this uniform. 5. His method proved to be the only possible one. 6. No one heard her open the door and go out.

V. Переведите письменно следующие предложения, обращая внимание на перевод глагола ***to be с последующим инфинитивом****.*

1. A very complicated problem is to be solved to achieve good results. 2. We were to meet and discuss the problem on Friday. 3. Our plan was to begin the experimental part of the research by the end of the month. 4. His idea is to develop a new technology of the process. 5. I was to have started the work last week, but I changed my mind. 6. Our aim is to improve the results of the previous experiments.

VI. Переведите письменно следующие предложения, содержащие ***"for-phrase".***

1. It is not advisable for children to go to bed late. 2. Much experimental work is needed for these phenomena to be explained. 3. For a force to exist, there must be two objects involved. 4. Here are the computations for them to use in their work. 5. Everybody waited for the new data of the experiment to be published. 6. This decision was for her to be made.

VII. Переведите письменно следующие предложения, обращая внимание на ***функции герундия*** *в предложении.*

1. They evaluated the equation by having substituted the numerical values for ***x*** and ***y***. 2. A graphical method of verifying formulae in the algebra of sets is called Vienn diagrams. 3. After obtaining the equation it is often possible to determine further geometric characteristics for these conditions. 4. We have succeeded in maintaining productivity level over the whole period. 5. We don't feel like analyzing the compatibility of the arithmetical axioms right now. 6. Children couldn't get used to solving such difficult problems.

VIII. Письменно переведите предложения, содержащие ***герундиальные обороты.***

1. My friend's becoming a prize winner of the contest was the first good news for all of us. 2. His having presented the problem in every detail helped us greatly to grasp the idea. 3. They insist on our applying this theory to a wider range of phenomena. 4. The manager objects to our making private calls on

the office phone. 5. You can't prevent your son's spending his own money. 6. Two scientists' doing research independently made it possible to create two essentially different ways of solving the same problem.

IX. Письменно переведите предложения, обращая внимание на функции слов ***one*** *и* ***that***.

1. There were a lot of books in the library, but I couldn't find the one I wanted. 2. The similarity one finds in this case is not accidental. 3. One must think of another approach to solving the problem. 4. The newly developed technique has certain advantages over the old one. 5. The theory of integration of transcendental functions is less systematic than that of the integration of rational and algebraical functions. 6. One should know the history of one's country. 7. These integrals can be reduced to those of rational functions by substitution.

Контрольное задание 3

I. Прочитайте текст, переведите его и письменно ответьте на вопросы, следующие за текстом.

Differential Equations

The term *differential equation* was first used by Leibniz in 1676 to denote a relationship between the differentials ***dx*** and ***dy*** of two variables ***x*** and ***y***. Now differential equation*s* are understood to include any algebraical or transcendental equalities which involve either differentials or differentials coefficients. Differentials may enter in place of derivatives.

If the unknown functions depend on one argument, the differential equation is called **ordinary**, if they depend on several ones, then the equation is termed a **partial differential equation**. The general form of a differential equation in one unknown function is

$$\Phi\,(x, y, y', y'', \ldots y^{(n)}) = 0.$$

The **order** of the differential equation is the order of the highest derivative in the equation. When an equation is polynomial in all the differential coefficient involved, the power to which the highest differential coefficient is raised is known as the **degree** of the equation. The equation is said to be **linear** when the dependent variable and its derivatives occur to the first degree only.

Examples. The equation

$$y' = y^2/x \tag{1}$$

is a first-order differential equation.

The equation of the type

$$d^2y/dx^2 + y = x^3 \tag{2}$$

is an ordinary linear equation of the second order.

Consider the following type of a differential equation.

$$(x + y)^2 \frac{dy}{dy} = 1 \tag{3}$$

is an ordinary non-linear equation of the first order and the first degree.

And at last the equation given below

$$x\frac{dz}{dx} + yz\frac{dz}{dy} = 0 \tag{4}$$

is a linear partial differential equation of the first order in two independent variables.

One calls a function $y = \Phi(x)$ *a solution* of a differential equation if, substituted into the equation, it reduces the equation to *an identity*. The basic task of the theory of differential equations is to find all the solutions of a given differential equation. In the simplest case, this reduces to evaluating an integral. For this reason, the solution of a differential equation is also called its **integral** and the process of finding all the solutions is called integrating the differential equation. Generally, the integral of a given differential equation is any equation, not containing derivatives, from which the given differential equation follows as a consequence.

Questions:

1. What did the term differential equation denote when Leibniz started using it? 2. What differential equation is called partial? 3. In what way can one define the order of a differential equation? 4. What is a solution of a differential equation? 5. What does it mean to integrate a differential equation?

II. Письменно переведите 2-й и 4-й абзацы текста.

III. Переведите письменно следующие предложения, обращая внимание на ***функции инфинитива****.*

1. There is no general method to determine the limit. 2. To raise a product to a power, it is sufficient to raise each of its factors to that power. 3. To

understand this phenomenon is to understand the structure of atoms. 4. Abel was not the first to make an attack on the general equation of the fifth degree. 5. He is studying mathematics in order to qualify for a better job. 6. He thought it safer to go there by train.

IV. Переведите письменно следующие предложения, принимая во внимание особенности перевода инфинитивных оборотов ***Complex Subject*** *и* ***Complex Object.***

1. No one appears to have taken the implication of this idea seriously. 2. We now believe differential equations to include any algebraic equality involving either differentials or differential coefficients. 3. Two distinct points are said to be symmetric with respect to the axis of symmetry. 4. The scientists were made to fulfill a lot of experiments. 5. A line is certain to be normal to another when it meets the other at right angles. 6. At the same time we have observed the initial signals not to change with temperature.

V. Переведите письменно следующие предложения, обращая внимание на перевод глагола ***to be с последующим инфинитивом****.*

1. One is to be very attentive when crossing the street. 2. We are to get a 10 per cent wage rise in June. 3. Our present concern will be to analyse the information obtained during the experiment. 4. You are to do your homework before you watch TV. 5. Our suggestion was to make use of the old equipment. 6. The problem has been to simplify the procedure under consideration.

VI. Переведите письменно следующие предложения, содержащие ***"for-phrase".***

1. My science advisor brought some papers for me to look them through. 2. It is impossible for a single force to produce the same effect as a couple. 3. The best decision for us to make at the moment is to wait and see. 4. For the experiment to be finished in time, we must begin to work immediately. 5. The article was provided with diagrams for the reader to understand it better. 6. His idea is for us to travel in separate cars.

VII. Переведите письменно следующие предложения, обращая внимание на ***функции герундия*** *в предложении.*

1. Making use of these properties will help us greatly. 2. Parentheses preceded by a plus sign may be removed from an expression without changing the signs of the terms in parentheses. 3. In writing and reading numbers, the figures are separated into groups of three figures each, called periods. 4. It seems to me

the case is not worth mentioning. 5. We don't feel like discussing the problems of prime numbers any more. 6. There is no point in developing the notions concerning infinitesimals and limit any further.

VIII. Письменно переведите предложения, содержащие ***герундиальные обороты.***

1. His having succeeded in solving the problem was quite unexpected for our scientific community. 2. There is no hope of our getting a complete analysis of the data within ten days. 3. Would you mind this student answering one more question? 4. We don't object to your developing an alternative theory as this one seems unsatisfactory. 5. I appreciate your giving me so much of your time. 6. Newton's having discovered the laws of mechanics determined the development of science for many years to come.

IX. Письменно переведите предложения, обращая внимание на функции слов ***one*** *и* ***that****.*

1. One must be very careful when formulating this statement. 2. One needs to know all rules of locating a point on the surface. 3. The technique used had some advantages over that suggested by Professor Brown. 4. One believes that the procedure mentioned above will simplify the solution of the problem. 5. The computer allows one to make calculations in a short time. 6. A very powerful method of integration is that of changing the independent variable. 7. We can advise you several procedures, but this is the most reliable one.

КОНТРОЛЬНАЯ РАБОТА 4

Для того чтобы правильно выполнить контрольные задания № 1, 2, 3, необходимо усвоить следующие разделы грамматики:

1. Основные сведения о сослагательном наклонении.
2. Основные сведения об условных предложениях.
3. Употребление модальных глаголов *must*, *may*, *might*, *should* с перфектным инфинитивом.

THE SUBJUNCTIVE MOOD
(Сослагательное наклонение)

Наклонение – это форма глагола, при помощи которой говорящий показывает отношение действия к реальности.

Сослагательное наклонение описывает действие как *нереальное, проблематичное, маловероятное, желаемое* или *предполагаемое*, а также используется, чтобы выразить эмоциональное отношение говорящего к реальной ситуации. На русский язык переводится прошедшим временем глагола с частицей *бы*, которая может логично присоединяться к любому слову в предложении (сказал *бы*, пошел *бы*, ответил *бы*).

Сослагательное наклонение в простых предложениях употребляется:

1. Для выражения *маловероятных* или *желательных* действий. Проблематичность действия подразумевается ситуацией или выражается в другом предложении.

Today's mathematicians **would prefer** to investigate number systems in their entirety and not individual numbers.	*Современные математики предпочли бы изучать не отдельные числа, а числовые системы в целом.*
He **would have** certainly **objected**.	*Он бы обязательно был против.*

2. Для выражения желания, которое наверняка невыполнимо, или для выражения сожаления о чем-то, что было сделано или не сделано в прошлом, в эмфатических предложениях, начинающихся с **If only.**

(Oh), if If only	smb **did** smb **had done**

If only I **had** his address!	*Если бы у меня был его адрес!*
If only I **had not promised** to do it!	*Если бы я не пообещал сделать это!* (*И зачем я пообещал сделать это!*)

Сослагательное наклонение в сложноподчиненных предложениях употребляется:

1. Если в сложноподчиненном предложении, выражающем гипотетическое действие, содержатся слова, выражения или целые предложения, которые выражают *желание, намерение, побуждение к действию* (to insist, the order, was suggested, it's necessary, etc.), то в придаточном предложении употребляется форма сослагательного наклонения **should do/should have done. Should** употребляется со всеми лицами. Для американского английского более характерно употребление в такого рода предложениях форм вида **do/have done** для всех лиц.

2. *Сказуемое* главного предложения выражено *глаголами* ***побуждения***, ***приказания***, ***требования***, ***просьбы*.**

Smb	requests/requested insists/insisted suggests/suggested demands/demanded orders/ordered recommend/recommended propose/proposed advise/advised require/ required etc.	that	smb (**should) do**

Why do you insist that he (**should) be told** about it?	*Почему вы настаиваете, чтобы ему сказали об этом?*
We recommend that every theorem (**should) be derived** inductively.	*Мы рекомендуем, чтобы каждая теорема была получена индуктивно.*

3. В главном предложении есть слова, выражающие **желание, намерение, побуждение к действию.**

The wish The order The demand The suggestion The arrangement The request The rule	is (was)	that	smb (**should) do**
	that	smb (**should) do**	is, was, do, did, etc.

Her suggestion is that the conference **(should) take** place right here.	*Ее предложение состоит в том, чтобы конференция состоялась прямо здесь.*
The recommendation that nobody **(should) leave** before Saturday was received with understanding.	*Рекомендация никому не уезжать до субботы была воспринята с пониманием.*

4. Предложение начинается с местоимения ***it.***

It is (was)	important necessary advisable recommended better (best) urgent ordered requested arranged suggested	that	smb (**should) do**

It was arranged that the library **(should) supply** all the students with the necessary books.	*Было устроено так, чтобы библиотека обеспечивала всех студентов необходимыми книгами.*
It was important that he **(should) be informed** at once.	*Было важно, чтобы его немедленно проинформировали.*
It is demanded that a math theory **(should) have** a rigorous foundation.	*Требуется, чтобы математическая теория имела строгие обоснования.*

5. В придаточных предложениях после союзов **lest** (*чтобы ... не*), **so that** (*так, чтобы*), **that/ in order that** (*чтобы/для того, чтобы*):

Smb	does did will do	**lest**	smb (**should) do**
		so that	smb **should not do** smb **may/might do** smb **can/could do** *But also:* smb **does, will do, is,** etc.
	fears/feared worries/worried is (was) afraid is (was) anxious	**lest**	smb (**should) do** smb (**should) have done**
		that	smb **may/might do** smb **can/could do** smb **may/might have done** *But also:* smb **does, did, will do**, etc.
The fear The doubt The worry	is (was)	**lest**	smb (**should) do** smb (**should) have done**

Here is my address ***lest*** you **(should) forget** it.	*Вот мой адрес, чтобы вы не забыли его.*
Here is my address ***so that*** you **should not forget** it.	*Вот мой адрес, чтобы вы не забыли его.*
Speak a bit louder ***so that*** everyone **could follow** you.	*Говорите немного громче, так, чтобы все вас слышали.*
I feared ***that*** they **might lose** the way in the fog.	*Я боялся, что в тумане они могут сбиться с дороги.*
My only worry was ***lest*** they **should be** out.	*Меня беспокоило только одно – вдруг их не будет дома.*

6. В придаточных предложениях после союзов **as if**, **as though** (*как будто бы, как если бы, словно*).

Smb	does did will do	**as if** **as though**	smb **did/were** smb **was (were) doing** smb **had done** smb **could do** smb **could have done** smb **would do** *But also:* smb **does, is, had been doing**, etc.
	looks/looked feels/felt seems/seemed is/was		

Mathematicians operate with numbers ***as if*** they **existed** in reality.	*Математики оперируют числами, как будто они реально существуют.*
Non-mathematicians accept natural numbers ***as though*** they **were** intuitively **given**.	*Люди, далекие от математики, воспринимают натуральные числа, как если бы они были изначально интуитивно понятными.*
She will treat you ***as if*** nothing **had happened**.	*Она будет держаться с вами так, словно ничего не случилось.*
You speak ***as if*** you **could help** me.	*Вы говорите так, словно можете мне помочь.*
Why do you behave, ***as if*** you **didn't know** me?	*Почему ты ведешь себя так, словно ты меня не знаешь*?
Look, her eyes are red ***as if*** she **had been crying**.	*Смотри, у нее покрасневшие глаза, словно она плакала.*

7. В придаточных предложениях после **wish**.

Эти конструкции практически аналогичны простым предложениям с **If only**, с той разницей, что фразы с **If only** эмоционально более выразительные. На русский язык переводятся *Как жаль, что ..., Как бы мне* (*нам...*) *хотелось, чтобы ...* .

Когда такие предложения переводятся, начиная со слов *Как жаль, что ...*, то английское ***отрицательное*** предложение переводится русским ***утвердительным*** предложением и наоборот.

Smb	wishes wished will wish	smb **did/were** smb **were doing** smb **could do**	пожелание относительно ситуации *в настоящем*
		smb **had done** smb **could have done**	сожаление относительно уже случившегося/не случившегося *в прошлом*
		smb **would do**	*с разными подлежащими в главном и придаточном предложениях* для выражения вежливой просьбы, а также сожаления и раздражения от того, что что-то все равно будет продолжать происходить или не происходить *в настоящем или будущем*

I wish I **were** a mathematician.	*Жаль, что я не математик.*
We wish the infinity **existed** in reality.	*Жаль, что бесконечность в реальности не существует.*
I wish I **could finish** the work in time.	*Жаль, что я не могу закончить работу вовремя.*
You'll wish you **hadn't promised**.	*Вы пожалеете, что пообещали.*
I wish I **could have mastered** the calculus of transfinite numbers.	*Жаль, что я не смог овладеть исчислением трансфинитных чисел.*
She wishes he **would give up** smoking.	*Ей хотелось бы, чтобы он бросил курить.*
We wished they **wouldn't come.**	*Нам хотелось бы, чтобы они не приезжали.* (*Хоть бы они не приехали.*)

8. После выражения **It's time** ...

It is (was) **time**	smb **did**

It is time it **stopped** raining.	*Пора бы дождю прекратиться.*
It was time he **told** us the aim of his visit.	*Ему пора было сообщить нам о цели своего посещения.*

Другие способы выражения *проблематичности*, *нереальности*, *желательности*, *предпочтительности* действия:

1. Устойчивый модальный оборот **would rather (sooner)** используется для выражения предпочтений говорящего:

Smb	would rather would sooner	(not) **do**	оборот с *неперфектным* инфинитивом выражает желание говорящего выполнить действие в *настоящем* или *будущем*
		(not) **have done**	оборот с *перфектным* инфинитивом выражает нереализованное желание говорящего совершить действие в *прошлом*
		smb **did** smb **did**	оборот с *Past Indefinite* выражает желание говорящего, чтобы *кто-то* выполнил действие в *настоящем* или *будущем*
		smb **had done** smb **had done**	оборот с *Past Perfect* выражает сожаление говорящего о нереализованном *кем-то* действии в *прошлом*

I'd rather **use** the terms "point" and "number" interchangeably in this case.	*Я бы лучше использовал термины "точка" и "число" как взаимозаменяемые в этом случае.*
She would rather **have stayed** at home.	*Она бы предпочла остаться дома.*
I'd rather you **didn't interrupt** me.	*Я бы предпочел, чтобы ты не прерывал меня.*
I'd rather you **had used** facts known from the lectures.	*Я бы предпочел, чтобы ты использовал факты, приведенные на лекциях.*

2. *В модальных оборотах* **had better** + *инфинитив* (без частицы **to**) выражается настоятельный совет выполнить действие в конкретной ситуации. Иногда этот оборот включает оттенок угрозы или предупреждения.

You'd better **prove** that the following properties are true.	*Ты бы лучше доказал, что следующие свойства верны.*
You had better ***not*** **be** late.	*Тебе лучше не опаздывать.*

CONDITIONAL SENTENCES
(Условные предложения)

Придаточные предложения условия присоединяются к главному предложению союзами **if** (если), **unless** (*если не*), **in case** (*в случае*), **provided/ providing** (that) (*при условии, если только*), **on condition** (that) (*при условии если, при условии, что*), **suppose/supposing** (that) (*если, в случае, если бы, предположим, что*).

Выделяют три типа условных предложений.

Первый тип условных предложений

I тип условных предложений выражает действие, относящееся к *будущему*. Действие характеризуется как *реальное*, так и *возможное.* В русском языке соответствует предложениям с глаголами в *изъявительном наклонении***.**

Придаточное предложение	Главное предложение
If smb **does**,	smb **will/shall do**

If they **like** the idea, they **will finance** the project.	*Если им понравится ваша идея, они профинансируют проект.*
If I **have** time, I **shall complete** the experiment.	*Если у меня будет время, я закончу опыт.*
Ann **will learn** English in one year provided she **works** hard.	*Анна выучит английский за год, при условии, что она будет усердно заниматься.*

Второй тип условных предложений

II тип условных предложений выражает действие, относящееся к *настоящему* и *будущему*. Действие характеризуется как *маловероятное*, но *возможное*. В русском языке соответствуют предложениям с глаголами *в сослагательном наклонении* (т. е. глагол в прошедшем времени с частицей *бы*).

Придаточное предложение	Главное предложение
If smb **did**,	smb **should / would / could / might** **do**

If he **knew** about it, he **could come.**	*Если бы он знал об этом, он бы мог прийти.*
If the term **were defined** precisely, it **wouldn't lead** to contradictions.	*Если бы термин был точно определен, он бы не приводил к противоречиям.*
If modern maths **were** *not* **characterized** by a higher level of abstraction, it **would** *not* **become** incomprehensible for a non specialist.	*Если бы современная математика не характеризовалась более высоким уровнем абстракции, она не была бы такой непонятной для не специалиста.*

Третий тип условных предложений

III тип условных предложений выражает действие, относящееся к *прошлому*, поэтому действие является и *нереальным*, и *невыполнимым*. Переводится, аналогично предложениям II типа, *сослагательным наклонением.*

Придаточное предложение	Главное предложение
If smb **had done**,	smb **should / would / could / might** **have done**

If I **had recognized** him, I **should (would) have spoken** to him.	*Если бы я его узнал* (*тогда*)*, я бы заговорил с ним.*
If he **had insisted**, I **could have agreed**.	*Если бы он настоял* (*тогда*)*, я бы мог согласиться.*

Смешанный тип условных предложений

а) условие в придаточном предложении относится к *прошлому* (III тип), а действие в главном предложении относится к *настоящему* и *будущему* (II тип).

Придаточное предложение	Главное предложение		
If smb **had done**,	smb	**should / would / could / might**	**do**

If you **had taken** your medicine yesterday, you **would be** well now.	*Если бы вчера вы приняли лекарство, теперь вы были бы здоровы.*

б) условие в придаточном предложении относится к *настоящему* и *будущему* (II тип), а действие в главном предложении относится к *прошлому* (III тип).

Придаточное предложение	Главное предложение		
If smb **did**,	smb	**should / would / could / might**	**have done**

If he **were not** so absent-minded, he **wouldn't have forgotten** to call me yesterday.	*Если бы он вообще не был таким рассеянным, он не забыл бы позвонить мне вчера.*

В случае ***инверсии*** союз **if** опускается, а глаголы **had**, **were**, **could**, **should** ставятся перед подлежащим. Инверсия характерна для официального стиля.

Were she here, I **should (would) ask** her about it.	*Будь она здесь* (*если бы она была здесь*), *я бы спросил ее об этом.*
Had he **hurried**, he **could have caught** the train.	*Поторопись он тогда* (*если бы он поторопился*), *он бы мог успеть на поезд.*

Нереальные условия могут также выражаться следующими способами:

а) лексическим способом **but for** + noun/pronoun (*если бы не ...*)

But for the rain, we **should (would) go** down to the country.	*Если бы не дождь, мы бы поехали за город.*
But for the rain, we **should (would) have gone** down to the country yesterday.	*Если бы не дождь, мы бы поехали за город вчера.*

б) **If it were not for** + noun/pronoun

If it **were** not for you, I **shouldn't (wouldn't) know** what to do.	*Если бы не ты, я бы не знал, что делать.*
If it **hadn't been** for you, nothing **could have happened**	*Если бы не ты, ничего бы тогда могло не случиться.*

Facts to be remembered:

- В современном английском языке форма ***would*** в условных предложениях является предпочтительной для всех лиц.
- Форма **were** употребляется со всеми лицами единственного и множественного числа.

Контрольное задание 1

I. Прочитайте текст, переведите его и письменно ответьте на вопросы, следующие за текстом.

Cache memory

1. Most PCs are held back not by the speed of their main processor, but by the time it takes to move data in and out of memory. One of the most important techniques for getting around this bottleneck is the memory cache.

2. The idea is to use a small number of very fast memory chips as a buffer or cache between main memory and the processor. Whenever the processor needs to read data it looks in this cache area first. If it finds the data in the cache then this counts as a 'cache hit' and the processor need not go through the more laborious process of reading data from the main memory. Only if the data is not in the cache does it need to access main memory, but in the process it copies whatever it finds into the cache so that it is there ready for the next time it is needed. The whole process is controlled by a group of logic circuits called the cache controller.

3. One of the cache controller's main jobs is to look after "cache coherency" which means ensuring that any changes written to main memory are reflected within the cache and vice versa. There are several techniques for achieving this, the most obvious being for the processor to write directly to both the cache and main memory at the same time. This is known as a "write-through" cache and is the safest solution, but also the slowest.

4. The main alternative is the "write-back" cache which allows the processor to write changes only to the cache and not to main memory. Cache entries that have changed are flagged as "dirty", telling the cache controller to

write their contents back to main memory before using the space to cache new data. A write-back cache speeds up the write process, but does require a more intelligent cache controller.

5. Most cache controllers move a “line” of data rather than just a single item each time they need to transfer data between main memory and the cache. This tends to improve the chance of a cache hit as most programs spend their time stepping through instructions stored sequentially in memory, rather than jumping about from one area to another. The amount of data transferred each time is known as the “line size”.

Questions:

1. What is the memory cache? 2. In what case does the processor need to access main memory? 3. What is one of the cache controller's main jobs? 4. What is known as a “write-through” cache? 5. What is the main alternative to a “write-through” cache?

II. Перепишите и письменно переведите 2-й и 3-й абзацы текста.

III. Определите тип условных предложений и письменно переведите их, обращая внимание на разницу в переводе форм ***сослагательного наклонения*** *во II, III типах условных предложений и форм* ***изъявительного наклонения*** *в предложениях I типа.*

1. It would be difficult to enumerate all the fields of computer applications. 2. We shall begin the meeting as soon as everybody comes. 3. If more than three variables were involved, the graphical representation would not be possible. 4. If he had been given opportunity, the work might have been finished. 5. If he were more careful, he would have given a correct answer. 6. Had they been asked to take part in the research, they would have agreed. 7. But for the paradoxes, Cantor’s set theory could have served as a secure foundation for maths.

IV. Определите тип ***условных предложений****. Выберите правильный вариант формы глагола. Письменно переведите предложения.*

1. We shall perform all the necessary operations provided you (will help/ help/helped) us. 2. If we had our first examination tomorrow, we (should have/shall have/have) more time to prepare for the second one. 3. If he (has/had/had had) time yesterday, he would have completed the experiment.

4. If he had worked harder last year, he (won't have/wouldn't have/doesn't have) any difficulties with his exams now. 5. (Were/Had/Will be) I asked how many transfinite numbers exist, I would say that there exists an infinity of transfinite cardinal numbers. 6. If it (hadn't been/were not/had been) for her help, he wouldn't have made that great discovery.

V. Выберите правильный вариант формы глагола в ***сослагательном наклонении*** *в конструкциях, содержащих* ***wish/if only****. Письменно переведите предложения.*

1. I wish I (could/can/shall) define that concept with the aid of definition. 2. We wish the problem (will be/were/has been) more investigated. 3. He wished he (doesn't create/shouldn't create /had not created) a false impression that all sequences were of the same type. 4. They wish hackers (will not break/would not break /have not broken) into corporate and government computers. 5. If only I (had defined/define/will define) all sequences explicitly! 6. If only he (were pleased/ is pleased/will be pleased) with my work!

VI. Переведите письменно предложения, учитывая способы перевода ***придаточных предложений и оборотов****, содержащих* ***формы сослагательного наклонения****.*

1. I'd rather define the complement of the set X with respect to the set Y. 2. You'd better begin the analysis by defining this number. 3. It's time we thought about the matter. 4. It's very important in some cases that there should exist an algebraic equation connecting x and y. 5. He insists that every student should realize that one-to-one correspondence lies at the heart of Cantor's set theory. 6. Classical Greek mathematicians avoided infinite processes as if they had not existed at all. 7. Make haste lest you should be late.

VII. Выберите правильный вариант и письменно переведите предложения, содержащие ***формы сослагательного наклонения.***

1. I (would better/would rather/had rather) consider exact decimals in this specific example. 2. You (had better/would better/would rather) introduce these definitions for easy reference. 3. It's time you (finished/finish/will finish) writing the test. 4. It is always recommended that we (should limit/would limit/limited) the domain of a particular function. 5. Cantor insisted that the number properties of infinite sets (should be/would be /will be) different from those of finite sets.

VIII. Переведите письменно предложения, обращая внимание на то, как переводятся ***модальные глаголы в сочетании с перфектными формами инфинитива****.*

1. They must have found a good approximation for the solution. 2. They must have been discussing the question for two hours now. 3. They may have proved this theorem with the help of this axiom. 4. The graph may have been sketched incorrectly. 5. You might have noticed that all notations used in this text are consistent. 6. They ought to have given the necessary explanation.

Контрольное задание 2

I. Прочитайте текст, переведите его и письменно ответьте на вопросы, следующие за текстом.

The anatomy of a virus

1. A biological virus is a very small, simple organism that infects living cells, known as the host, by attaching itself to them and using them to reproduce itself. This often causes harm to the host cells.

2. Similarly, a computer virus is a very small program routine that infects a computer system and uses its resources to reproduce itself. It often does this by patching the operating system to enable it to detect program files, such as COM or EXE files. It then copies itself into those files. This sometimes causes harm to the host computer system.

3. When the user runs an infected program, it is loaded into memory carrying the virus. The virus uses a common programming technique to stay resident in memory. It can then use a reproduction routine to infect other programs. This process continues until the computer is switched off.

4. The virus may also contain a payload that remains dormant until a trigger event activates it, such as the user pressing a particular key. The payload can have a variety of forms. It might do something relatively harmless such as displaying a message on the monitor screen or it might do something more destructive such as deleting files on the hard disk.

5. When it infects a file, the virus replaces the first instruction in the host program with a command that changes the normal execution sequence. This type of command is known as a JUMP command and causes the virus instructions to be executed before the host program. The virus then returns control to the host program which then continues with its normal sequence of instructions and is executed in the normal way.

6. To be a virus, a program only needs to have a reproduction routine that enables it to infect other programs. Viruses can, however, have four main parts. A misdirection routine that enables it to hide itself; a reproduction routine that allows it to copy itself to other programs; a trigger that causes the payload to be activated at a particular time or when a particular event takes place; and a payload that may be a fairly harmless joke or may be very destructive. A program that has a payload but does not have a reproduction routine is known as a Trojan.

Questions:

1. What is a computer virus? 2. In what way does a virus infect a computer system? 3. What does a virus use to stay resident in memory? 4. What sort of routine does a program need to have to be a virus? 5. What program is known as a Trojan?

II. Перепишите и письменно переведите 4-й и 6-й абзацы текста.

III. Определите тип условных предложений и письменно переведите их, обращая внимание на разницу в переводе форм ***сослагательного наклонения*** *во II, III типах условных предложений и форм* ***изъявительного наклонения*** *в предложениях I типа.*

1. Without special devices the solution of such complicated problems would be impossible. 2. If the model fits well, the observed data will be correct. 3. A valuable contribution would be made if considerable efforts were devoted to the theoretic examination. 4. If you had made use of logarithms, you could have found them very helpful. 5. If you studied hard, you would have managed to achieve your task. 6. Had he been aware of this fact, he would have been more cautious. 7. But for the teacher's help, the students would have failed their experiment.

IV. Определите тип ***условных предложений****. Выберите правильный вариант формы глагола. Письменно переведите предложения.*

1. If the distance between the Sun and the Earth (had been/were/is) less, the temperature on the surface of the Earth would be much higher. 2. We (could/will be able/can) go on with our work if our assumptions were correct. 3. Unless computer techniques (have been developed/had been developed/ were developed), space research would have never made such great progress. 4. If the teacher (had introduced/has introduced/introduced) the law of exponents at the previous lecture, you could make use of it for evaluating the result now. 5. (Had/Has/Should) I been given the article, I could have

translated it by now. 6. If it (hadn't been/were not/had been) for her help, we wouldn't have obtained the information required.

V. Выберите правильный вариант формы глагола в ***сослагательном наклонении*** *в конструкциях, содержащих* ***wish/if only****. Письменно переведите предложения.*

1. I wish I (could/can/shall) establish a one-to-one correspondence between the elements of the two sets. 2. They wish education (will be/were/has been) enhanced using all or most of the human senses. 3. He wishes he (had distinguished/should distinguish/will distinguish) a family of elements *X* from the subset of *X*. 4. All computer users wish hackers (don't steal/would not steal/won't steal) their passwords and private information. 5. If only he (has clarified/had clarified/should clarify) that notation! 6. If only I (knew/have known/will know) how to solve the first problem!

VI. Переведите письменно предложения, учитывая способы перевода ***придаточных предложений и оборотов****, содержащих* ***формы сослагательного наклонения****.*

1. I'd rather get a closer approximation by adding digits at the right. 2. You'd better emphasize that positive integers form a set regardless of order. 3. It's high time I went home. 4. It's desirable that we should consider a special case of many-one correspondence. 5. He suggested that an infinite set should be studied as a whole. 6. Most mathematicians continued to develop their theories as if the crisis in the foundations of maths had not concerned them. 7. He feared lest all his efforts should be useless.

VII. Выберите правильный вариант и письменно переведите предложения, содержащие ***формы сослагательного наклонения****.*

1. I (would better/would rather/had rather) clear up the situation. 2. You (had better/would better/would rather) count all positive integers in their order of increasing magnitude. 3. It's time I (finished/finish/will finish) the thesis. 4. It's necessary that the programmer (would know/should know/knew) one or more of the standard languages and the art of programming. 5. He insisted that the students (should explain/would explain/explained) the binary system giving a specific example.

VIII. Переведите письменно предложения, обращая внимание на то, как переводятся ***модальные глаголы в сочетании с разными формами инфинитива.***

1. They must have misunderstood the theoretical character of the issue. 2. This book must have been written years ago. 3. They may have defined the product

of *n* sets by induction. 4. The function may have been defined as tending to infinity. 5. You might have come to a certain conclusion. 6. He should have paid more attention to constructions.

Контрольное задание 3

I. Прочитайте текст, переведите его и письменно ответьте на вопросы, следующие за текстом.

Network Communications

1. The application layer is the only part of a communications process that a user sees, and even then, the user doesn't see most of the work that the application does to prepare a message for sending over a network. The layer converts a message's data from human-readable form into bits and attaches a header identifying the sending and receiving computers.

2. The presentation layer ensures that the message is transmitted in a language that the receiving computer can interpret (often ASCII). This layer translates the language, if necessary, and then compresses and perhaps encrypts the data. It adds another header specifying the language as well as the compression and encryption schemes.

3. The session layer opens communications and has the job of keeping straight the communications among all nodes on the network. It sets boundaries (called bracketing) for the beginning and end of the message, and establishes whether the messages will be sent half-duplex, with each computer taking turns sending and receiving, or full-duplex, with both computers sending and receiving at the same time. The details of these decisions are placed into a session header.

4. The transport layer protects the data being sent. It subdivides the data into segments, creates checksum tests – mathematical sums based on the contents of data – that can be used later to determine if the data was scrambled. It can also make backup copies of the data. The transport header identifies each segment's checksum and its position in the message.

5. The network layer selects a route for the message. It forms data into packets, counts them, and adds a header containing the sequence of packets and the address of the receiving computer.

6. The data-link layer supervises the transmission. It confirms the checksum, then addresses and duplicates the packets. This layer keeps a copy of each packet until it receives confirmation from the next point along the route that the packet has arrived undamaged.

7. The physical layer encodes the packets into the medium that will carry them – such as an analogue signal, if the message is going across a telephone line – and sends the packets along that medium.

8. An intermediate node calculates and verifies the checksum for each packet. It may also reroute the message to avoid congestion on the network.

9. At the receiving node, the layered process that sent the message on its way is reversed. The physical layer reconverts the message into bits. The data-link layer recalculates the checksum, confirms arrival, and logs in the packets. The network layer recounts incoming packets for security and billing purposes. The transport layer recalculates the checksum and reassembles the message segments. The session layer holds the parts of the message until the message is complete and sends it to the next layer. The presentation layer expands and decrypts the message. The application layer converts the bits into readable characters, and directs the data to the correct application.

Questions:

1. What is the only part of a communications process that a user sees? 2. Which layer ensures that the message is transmitted in a language that the receiving computer can interpret? 3. Which layer protects the data being sent? 4. What does the network layer form data into? 5. Why may an intermediate node reroute the message?

II. Перепишите и письменно переведите 3-й и 4-й абзацы текста.

III. Определите тип условных предложений и письменно переведите их, обращая внимание на разницу в переводе форм ***сослагательного наклонения*** *во II, III типах условных предложений и форм* ***изъявительного наклонения*** *в предложениях I типа.*

1. It would be difficult to illustrate this method on homogeneous systems. 2. The graph will be symmetrical about the axis of x if the equation contains only even powers of y. 3. If he clarified his statement, we could have a better understanding of the situation. 4. If we discussed the major problems facing us, instead of the details, we could realize our plan more successfully. 5. You would have understood his work in case you knew the work of his predecessors in this area. 6. Were they ready, we might begin the research. 7. But for her help, they would have come across a lot of difficulties.

IV. Определите ***тип условных предложений****. Выберите правильный вариант формы глагола. Письменно переведите предложения.*

1. She will not attend the conference tomorrow if she (is not ready/will not be ready/be ready) with her paper. 2. If you (know/knew/will know) the length of

the radius, you could easily find the diameter. 3. If Cantor (didn't develop/shouldn't develop/hadn't developed) his theory of infinite classes, Zeno's and Galileo's paradoxes would not have been resolved. 4. I (wouldn't have agreed/won't agree/ didn't agree) to write this article unless I knew the subject. 5. (Were/Has been/Will be) the set concept so simple as it may seem, the mathematicians would have applied it much earlier. 6. If it were not for his help, we (shouldn't design/wouldn't have designed/ won't design) this machine in due time.

V. Выберите правильный вариант формы глагола в ***сослагательном наклонении*** *в конструкциях, содержащих* ***wish/if only****. Письменно переведите предложения.*

1. I wish I (could/can/shall) prove 'continuum hypothesis'. 2. The students wish scientists (will develop/had developed/develop) an intelligent tutoring system with capabilities for adaptation to a particular student. 3. We wish we (don't use/don't have to use/didn't have to use) similar notations for the set of elements of any finite or infinite sequence. 4. The government wishes hackers (would not penetrate/shouldn't penetrate/don't penetrate) computer systems in control of missiles. 5. If only he (learn/had learned/have learned) to program! 6. If only I (found/find/should find) the solution to the problem!

VI. Переведите письменно предложения, учитывая способы перевода ***придаточных предложений и оборотов****, содержащих* ***формы сослагательного наклонения****.*

1. I'd rather establish this relation by assuming *e* to be any preassigned positive number as small as desired. 2. You'd better use consistent notations. 3. It's time we started the experiment. 4. It is essential that one should make a distinction between finite and infinite sets. 5. He advised that the students should read this book. 6. In axiomatic set theory Zermelo regards a set as if it were simply an undefined object satisfying a given list of axioms.

VII. Выберите правильный вариант и письменно переведите предложения, содержащие ***формы сослагательного наклонения****.*

1. I (would better/would rather/had rather) represent zero or any positive integer by using just these digits. 2. You (had better/would better/would rather) take care to distinguish this subset from the subset of *X*. 3. It's time you (solve/solved/would solve) the problem. 4. It's necessary that the students (should give/would give/gave) suitable examples to prove the theory. 5. Cantor insisted that the set of transcendental numbers (had/should have/will have) the power of the continuum.

VIII. Переведите письменно предложения, обращая внимание на то, как переводятся ***модальные глаголы в сочетании с разными формами инфинитива****.*

1. They must have shown that this property is true. 2. The function must have been represented geometrically. 3. He may have defined the function by means of a formula. 4. The values may have been selected quite small. 5. You might have encountered this symbol in the previous chapter. 6. You should have fulfilled your promise.

SUPPLEMENTARY READING

The numbers in any number system

A positional number system uses r different kinds of marks called digits, as we already know. By using just these digits we can represent zero or any positive integer. By using one additional kind of mark called the "minus sign", we can represent any negative integer as well. By using still another additional kind of mark called the "point", we can represent any real number either exactly or approximately, as discussed below.

Consider first the irrationals. No irrational can be exactly represented in any number system, nor will the digits of the number approximating it form indefinitely repeating cycles however far they are extended toward the right. For instance, no irrational is either an exact decimal or a repeating decimal. No matter how far we extend digits toward the right, there will be no indefinitely repeating cycle of digits. In general it can be proved that in any system an irrational number is a non-terminating and non-repeating positional number, and conversely.

Now consider the rationals. Any integer can be exactly represented in any system, as we have already seen. Likewise in any given number system, some of the nonintegers which are rational can be represented exactly (that is, they terminate, as one-fourth is exactly 0.25 in the decimal system). The rest of the nonintegers which are rational cannot be represented exactly in the given system (as one-seventh cannot be represented exactly in the decimal system), but each of them can be exactly represented in some other system (as one-seventh is exactly 0.2 in the system with radix 14). It will be obvious that any rational number can be exactly represented in some system. Also it can be proved that if a rational number cannot be exactly represented in a given system, then its digits when carried far enough to the right begin to repeat indefinitely in some cycle.

In concluding these general remarks, let us note the theorem that any real number whatsoever can be represented as closely as we please. More exactly, let m be any real number and e be any preassigned positive number as small as desired. Then, in any given number system, there is some number n such that $m - n > e$.

Complex numbers

Mathematicians customarily write $\sqrt{-1}$ in such numbers as i and any complex numbers as $a + bi$.

Ordinary numbers can all be thought of as lying along a single straight line, a continuous stream without gaps in it – what mathematicians call a "continuum". But a typical complex number, $a + bi$, has no place on the line of ordinary numbers.

When two ordinary numbers are multiplied, the result is a jump along the straight line. When two complex numbers are multiplied, however, the result is a spectacular trapeze like swing within the two-dimensional plane.

The excentric behaviour of the complex numbers is important because it matches perfectly, and therefore serves as a literal translation of the behaviour of many quantities in nature, such as forces, velocities or accelerations, which act in definite directions. When two forces are exerted from different directions on the same point, for instance, their net effect is a third force with a new direction. Diagrammatically the strength and direction of each of the two forces can be represented as the length and direction of a line segment. Each of these two line segments in turn can be represented by a complex number, and the two complex numbers added together will then represent the third force which arises from the combination of the first two.

The line segments that symbolize forces, velocities and the like are called "vectors", and are an essential tool of physics. The fact that they and complex numbers behave alike mathematically makes it possible to analyse complicated situations in which many forces are all acting at once.

Numbers which serve to represent forces, velocities and accelerations acting in more than two dimensions are "hypercomplex numbers" – expressions like $a + bi + cj + dk$, in which the units i, j and k when multiplied together, produce minus one.

The most astonishing thing about these hypercomplex numbers is that they flout a basic rule of arithmetic previously thought inviolate. When multiplied together, the same two hypercomplex numbers may produce different results depending on the order in which they are taken; hypercomplex number a times hypercomplex number b does not always equal hypercomplex b times hypercomplex a.

The geometric interpretation of complex numbers

The study of complex numbers is greatly facilitated by interpreting then geometrically. Insofar as a complex number is defined as a pair of real numbers, it is natural to depict the complex number $z = a + b$ as a point in the

x, y – plane with Cartesian coordinates $x = a$ and $y = b$, the number $z = 0$ corresponding to the origin of the plane. We shall call it the complex plane; the axis of abscissae is the real axis, the axis of ordinates is the imaginary axis of the complex plane. Thus we establish a one-to-one correspondence between the set of all complex numbers and the set of points of the complex plane, and also between the set of all complex numbers $z = a + ib$ and the set of free vectors.

There is another extremely important form of representing complex numbers. It is possible to define the position of a point in the plane by means of polar coordinates (ρ, φ), where ρ is the distance of the point from the coordinate origin, and φ is the angle which the radius vector of the given point makes with the positive direction of the axis of abscissae. The positive direction of the variation of the angle φ is the counterclockwise direction $(-\infty < \varphi < \infty)$. We get the so-called trigonometric form (or polar form) of a complex number: $z = \rho(\cos\varphi + i\sin\varphi)$.

Here, ρ is usually called the modulus (or absolute value) and the argument of the complex number and $\rho = |z|$, $\varphi = \mathrm{Arg}z$. These formulae express the real and imaginary parts of the complex number in terms of its modulus and argument. It is easy to express the modulus and argument of a complex number in terms of its real and imaginary parts. The argument of the complex number $x = 0$ is not defined and its modulus is zero. Two nonzero complex numbers are equal if and only if their moduli are equal and the values of their arguments are either equal or differ by a multiple of 2π.

Symmetry

Many kinds of symmetry occur in nature. The human figure is approximately symmetrical about a vertical line, which is one of the reasons why mirrors seem to invert right and left. This kind of symmetry is known as bilateral symmetry.

A shape may be symmetrical about several lines at once, or combine bilateral and rotational symmetry. A square is bilaterally symmetric about its diagonals and about lines through the centre parallel to a side.

An entirely different sort of symmetry is exhibited by wallpaper patterns, where the whole pattern can be displaced in various directions without looking any different.

The essence of symmetry is the way shapes can be moved around and still look the same. Individual points, however, need not stay in the same place. The important thing is not the position of the points, but the operation of moving them.

The fact that the product of any two symmetries is also a symmetry is usually expressed as: the set of symmetries is closed under the operation of multiplication. This set of symmetries, with its multiplication, is an example of a mathematical structure dignified by the title "group".

Every shape has a symmetry group. The human figure has two symmetries: the identity and reflection r about a vertical line. In general, to find the symmetry group of a figure we must: a) find all the symmetries; b) work out the multiplications. In every case you will find that the set is closed under multiplication.

Functions

The concept of a function is fundamental in analysis, but it is not easy to give a precise definition of it. Clearly it deals with the set of values of a variable y when another variable x takes certain values. Consider, for example, the two functions:

(i) the function whose value is 1 when $x \geq 0$ and 0 when $x < 0$;

(ii) the function whose value is 1 when x is rational and 0 when x is irrational.

The set of values of each of these functions is the finite set containing the two numbers 0 and 1; but the two functions are quite different from each other. The sets of values of the two functions x^3 and x^5 are identical (in this case the set of all real numbers), but the functions are not the same.

The essential feature of the definition of a function is the concept of a "correspondence" or "relationship" between the individual members of two sets. This correspondence is known as "many-one", that is if x denotes any member of one set and y any member of the other, then to one value of y there may correspond one, or several, or even infinitely many values of x. The student may have encountered one-one correspondence in geometry; this is a special case of many-one correspondence.

Definition: If to each member x of a certain set M there corresponds one value of a variable y, then y is said to be a function of the variable x. The variable x is called the argument of the function, and the set M the domain of the function. The set of all the values taken by the variable y is called the ordinate set. Both the domain and the ordinate set may be either finite or infinite, bounded or unbounded.

It is important to observe that it is not implicit in the definition of a function that there should exist an algebraic equation connecting x and y. If y

and x are related so that y is a function of x, it does not necessarily follow that x is a function of y, although this may sometimes be true. For let X be the domain of this function and Y the ordinate set. Then if x is any member of X, we know that there is just one member y of Y which corresponds to it.

But if y is a member of Y, there may be more than one value of x in X which gives rise to a particular number, as the correspondence is many-one. If there are any values of Y for which this is so, then x is not a function of y according to the definition.

Functions may be represented geometrically. For this we take a rectangular system of Cartesian coordinates in a plane and associate with each member x of the domain of the function the point P whose coordinates are (x, y). The set of points P is called the graph of the function. A function defined by means of a formula may have its domain restricted by the character of the formula itself.

Power expansions

The powers of a variable x appeared originally purely in algebraic problems. With the development of calculus the great importance of power expansions became evident. The expansion discovered by Taylor (1715) and by Maclaurin (1742) enables us to predict the course of a function if we know the value of the function and all its derivatives in one particular point. The "Taylor series" thus became one of the cornerstones of analytical research and was particularly useful in establishing the existence of solutions of different equations.

If the series has no other purpose than numerical evaluation of the function, the degree of convergence has to be investigated. The Taylor expansion may converge in the entire complex plane or within a given circle only, and it may diverge even at every point. It was recognized, however, that a more liberal formulation of the question of convergence greatly increases the usefulness of an expansion.

One can make good use, for example, of "semiconvergent expansions" which actually diverge if we increase the number of terms to infinity, but converge in the beginning, thus allowing evaluation of the function with a certain limited accuracy which cannot be surpassed, since the error of the truncated series decreases to a certain minimum and then increases again. Much attention was paid also to the problem of inventing methods of summing a series in such a way that it shall become convergent, although the original series, if added term by term, increased to infinity.

With the development of the theory of orthogonal expansions the realization came that occassionally power expansions, whose coefficients are not determined according to the scheme of Taylor, can operate much more effectively than the Taylor series itself. Such expansions are not based on the process of successive differentiation but on integration. A large class of functions which are not sufficiently analytic to allow a Taylor expansion can be represented by such orthogonal expansions.

The realm of power expansions is thus extended far beyond the family of analytic functions. But even for analytical functions we may gain in convergence if we do not employ the powers directly but in the form of polynomials which are members of an orthogonal set of functions. These expansions belong to a given definite real realm of the variable x, and our aim is to approximate a function in such a way that the error shall not become too small or too large at any particular point of the range, but rather of the same order of magnitude all over the range. The gain in comparison with the Taylor series arises from the fact that we sacrifice in accuracy at the point where the Taylor series gave very accurate results but reduce the error in the peripheral regions where the error of the Taylor expansion became intolerably large.

Central processing unit

The combination of the processor and memory is sometimes referred to as the CPU, although sometimes the processor itself is referred to as the CPU. All program instructions to be executed must be held within the CPU, and all the data to be processed must be loaded first into this unit.

It is convenient to consider the central processor to have three separate hardware sections:

1) an internal or main memory;
2) an arithmetic and logic unit;
3) a control unit.

The CPU has two functions. It must (1) obtain instructions from the memory and interpret them and (2) perform the actual operations.

The first function is executed by the control unit. This unit in its turn must perform two functions. It must (1) interpret the instruction, then, on the basis of this interpretation (2) tell the arithmetic and logic unit what to do next. The latter function is accomplished through the use of electronic signals. According to these two functions we can separate the part of the control unit that interprets or decodes the instruction called the instruction decoder from the part that generates the control signals called the control generator.

An instruction having been transmitted to the instruction decoder, where it is interpreted, the control generator senses this interpretation and then

produces signals that tell the arithmetic unit which operation to perform. It also generates signals that choose the proper numbers from the memory and sends them to the arithmetic and logic unit at the proper time; and when operation has been performed, other control signals take the result from the arithmetic and logic unit back to the internal memory. After an instruction has been executed, the control generator produces signals that cause the next instruction to go from the memory to the instruction decoder. In this way the instructions are performed sequentially.

The second function of the CPU is performed by the arithmetic and logic unit which does the actual operations. This unit is capable of performing automatically addition, subtraction, multiplication, division, comparing, selecting and other mathematical and logical operations. In most computers only one word at a time can be transferred between the arithmetic/logic unit and the memory. Hence, to perform an operation involving two arguments, the first argument must be transferred from the memory to the arithmetic/logic unit and stored there temporarily while the second argument is being transferred. The special memory cell in the arithmetic/logic unit for this purpose is called the accumulator. The operation being performed, the result is formed in the accumulator before it is transmitted back to memory.

Next consider the instruction decoder that interprets instructions. It’s necessary that the instruction decoder should constantly refer to the instruction being interpreted during the time control signals are being set up. To facilitate this, while an instruction is being executed it is stored in a special memory cell called the instruction register, located in the instruction decoder.

There is another memory cell, located in the instruction decoder called the current-address register. The contents of this register is always the memory address from which the instruction being executed came. The reason for this is related to the fact that the address of the present instruction was given as part of the previous instruction.

Bluetooth

As portable computing devices get smarter and more capable, connectivity frustrations increase.

This is where Bluetooth comes in. The brainchild of Ericsson, IBM, Intel, Nokia and Toshiba, Bluetooth is a microwave high-speed wireless link system that's designed to work with portable equipment. To that end, it's low power, very small and very low cost. It uses the same frequencies as existing radio LANs (and, incidentally, microwave ovens) to create a secure 1 Mbit/s link between devices within 10m of each other. These devices can be laptops,

PDAs, cellphones, wired telephone access points, even wristwatch devices, headphones, digital cameras and so on. With them, your notebook PC will be able to access your cellular phone - and thus the Internet – without your having to take the phone out of your pocket. Files can be exchanged and communications set up for voice and data between just about any device capable of handling the information.

Bluetooth operates in the unlicensed SM (Industrial, Scientific and Medical) band at 2.45GHz, which is globally available for products. There's 89MHz of bandwidth allocated here, and since Bluetooth is very low power, it actually radiates less than most national and international standards allow non-transmitting devices to leak as part of their normal operation. This is key, as it allows the technology to operate without restriction on aircraft.

Ericsson and Nokia developed the RF side of Bluetooth. The link works in a similar way to the IEEE 802.11 wireless networking system, with a packet-switching protocol based on fast-frequency hopping direct sequence spread spectrum. In other words, it constantly switches channel to avoid interference. It changes frequency 1,600 times a second through 79 frequency bands. It's expected that this will be so good at avoiding conflicting signals from other sources that the transmission power can be kept very low.

Security is taken care of through the frequency hopping and 40-bit encryption. As the system uses radio, it can work through some barriers – briefcases, shirt pockets and desktops, for example – but it won't carry through office buildings.

Within the 10m radius of a unit, up to 10 independent full-speed piconets can operate, with bandwidth reduced proportionately if more than this are in use. Each piconet can handle up to eight devices.

Power consumption and cost were very significant factors in Bluetooth's design, and it was decided not to make the system a fully-fledged LAN. As a result, there's no collision detection. All devices on a piconet are synchronized to a master device and are controlled by it to prevent simultaneous operation on the same frequency. Any device can be a master, and is elected dynamically when the link starts up.

CONTENTS

Учебное издание

LEARN ENGLISH
BY CORRESPONDENCE

ИЗУЧАЕМ АНГЛИЙСКИЙ ЯЗЫК
НА ЗАОЧНОМ ОТДЕЛЕНИИ

Учебно-методическое пособие

Составители
Бизюк Людмила Константиновна
Столярова Елена Юрьевна

На английском и русском языках

Ответственный за выпуск *Т. М. Турчиняк*

Художник обложки *Т. Ю. Таран*
Технический редактор *Т. К. Раманович*
Компьютерная верстка *А. А. Микулевича*
Корректор *Л. С. Мануленко*

Подписано в печать 15.04.2015. Формат 60×84/16. Бумага офсетная.
Ризография. Усл. печ. л. 6,04. Уч.-изд. л. 5,43. Тираж 120 экз. Заказ 190.

Белорусский государственный университет.
Свидетельство о государственной регистрации издателя, изготовителя,
распространителя печатных изданий № 1/270 от 03.04.2014.
Пр. Независимости, 4, 220030, Минск.

Республиканское унитарное предприятие
«Издательский центр Белорусского государственного университета».
Свидетельство о государственной регистрации издателя, изготовителя,
распространителя печатных изданий № 2/63 от 19.03.2014.
Ул. Красноармейская, 6, 220030, Минск.

Изучаем английский язык на заочном отделении = Learn English
И40 by Correspondence : учеб.-метод. пособие / сост. : Л. К. Бизюк, Е. Ю. Столярова. – Минск : БГУ, 2015. – 102 с.
ISBN 978-985-566-144-4.

Учебно-методическое пособие состоит из четырех контрольных работ, которые содержат грамматический материал с комментариями, варианты заданий и упражнений, аутентичные тексты для изучения английского языка.

УДК 811.111’36(075.8)
ББК 81.2Англ-2-923